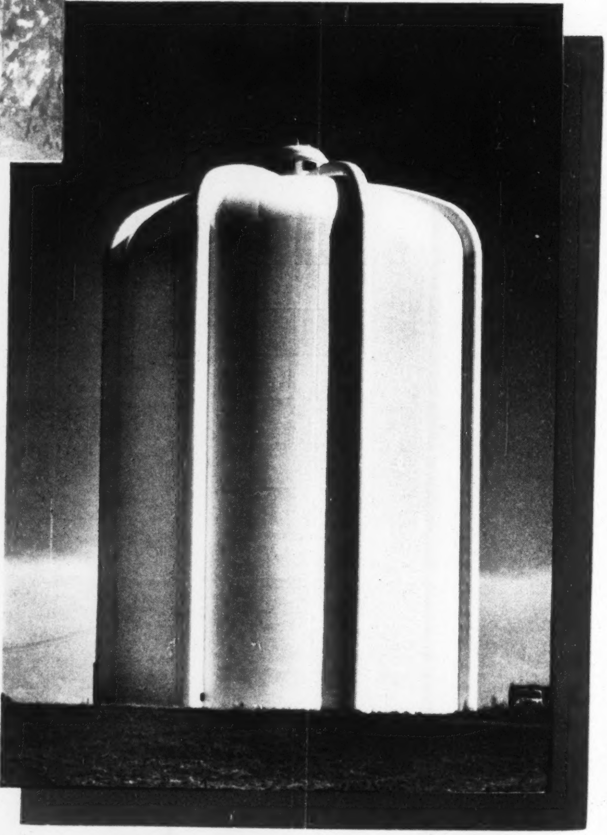
ENGINEERING NEWS-RECORD

★
★

A McGRAW HILL PUBLICATION

MADISON

Can Tell You About Modern Water Storage



LONGFELLOW, in his tribute, "Four Lakes of Madison", describes Wisconsin's capital as ". . . the fair city of the West". Nestled between Lake Mendota and Lake Monona, it has inspired many authors to write of its natural beauty. Others speak of the impressive State House with its towering dome or the University of Wisconsin with its fine educational facilities.

The people of Madison can be justly proud of their city, and even more so of the progressive planning that has resulted in a long record of civic improvements.

It is this planning that gives Madison a fine water system. Recently, a 3,000,000-gallon welded-steel standpipe was installed to complement the existing water storage capacity, and provide increased pressure in the city water mains. This structure is not only functionally efficient, but it is also strikingly modern in appearance.

The Madison standpipe was designed and erected by our Company. In addition, we build Horton elevated water tanks for dependable gravity pressure in standard capacities ranging from 5,000 to 3,000,000 gallons. Write our nearest office for complete information.

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Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and Greenville

In Canada: HORTON STEEL WORKS, Limited, FORT ERIE, Ont.

Axel Osberg, left, of Osberg Construction Co., Seattle, Wash., and Wayne Stowe, superintendent, with the 6 LPC Motor Scrapers used on the Stevens Pass job.

OSBERG CONSTRUCTION COMPANY *uses*

6 LaPLANT-CHOATE MOTOR SCRAPERS

on tough 500,000 yd. new Washington highway job

There's an LPC MOTOR SCRAPER working near you . . .

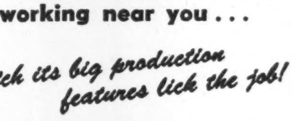
Watch its big production features lick the job!

Get in touch with your nearest LPC distributor—he'll be glad to take you out to a practical on-the-job demonstration of what the Motor Scraper can do when it comes to big time earthmoving. He'll explain all the features that make this rig the pace-setter on any job. Call him today for proof.

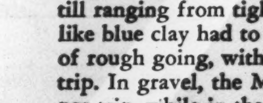
ON the Washington State Highway job to eliminate a dangerous approach to Stevens Pass, Osberg's six TS-300 Motor Scrapers *averaged a load every 8 minutes* under tough conditions. Approximately 500,000 yards of glacial till ranging from tight coarse gravel to hard almost-shale-like blue clay had to be moved over a plus half mile haul of rough going, with a 25% grade to travel on the return trip. In gravel, the Motor Scrapers were getting 14 yards per trip, while in the clay they were heaped to an average of 18 yards. Main tracks of the Great Northern Railway near the fill, and heavy traffic on an intersecting county road further complicated the job.

Whether your job is difficult or simple, you'll move more dirt per trip and average more trips per hour with the big power, high speed, big capacity Motor Scrapers. LaPlant-Choate Manufacturing Company, Inc., Cedar Rapids, Iowa — LaPlant-Choate Sales and Service, 1022 77th Ave., Oakland, Calif.

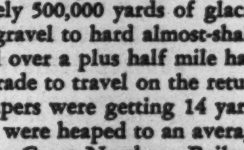
LaPLANT CHOATE



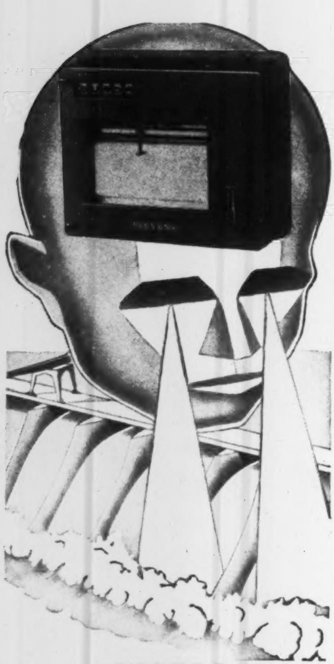
Cable-operated Scrapers in 6-, 8- and 14-yd. sizes for all makes of track-type tractors.



2- and 4-yd. Scrapers for track-type and rubber-tired industrial tractors.



Hydraulic and Cable-operated Dozers.



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ENGINEERING NEWS-RECORD

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Volume 146 FEBRUARY 8, 1951 No. 6

WALDO G. BOWMAN
Editor

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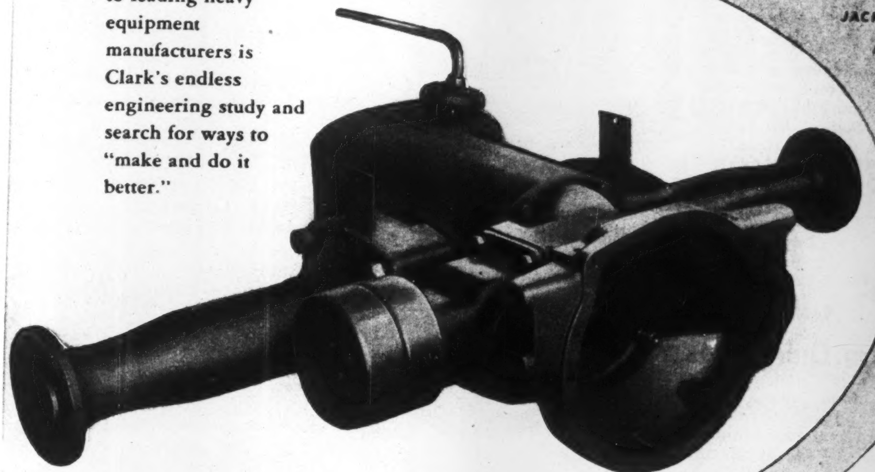
One main reason why "Working with Clark" appeals strongly to leading heavy equipment manufacturers is Clark's endless engineering study and search for ways to "make and do it better."



PRODUCTS OF CLARK – TRANSMISSIONS • FORK TRUCKS AND TRACTORS • AXLE HOUSINGS • AXLES
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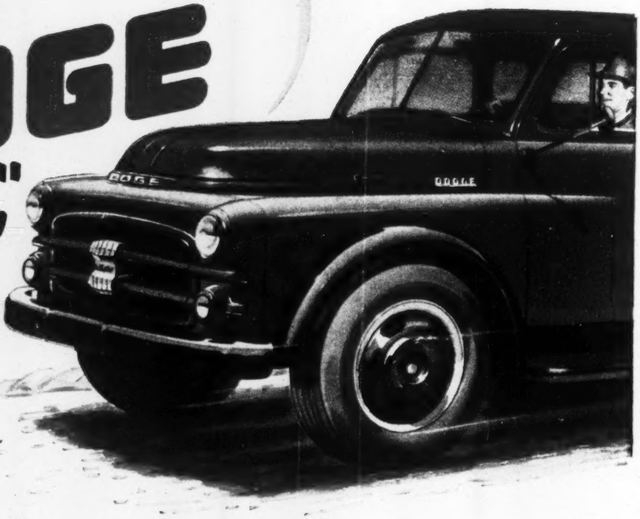
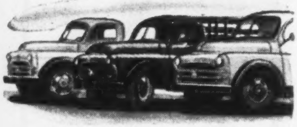


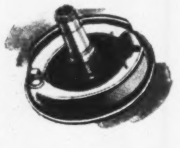
The trucks that do the most for you!

NEW Greater Power! Eight engines—with horsepower increases as high as 20%. You'll enjoy the *right power* for your job! *With all their extra value, Dodge "Job-Rated" Trucks are priced with the lowest!*



NEW Interiors! Striking new, massive appearance—inside and out! Lower hood line for better visibility. Attractive two-tone cab interiors. New clear-vision instrument panel. New seat comfort.

NEW Extra Quiet Brakes! Another Dodge "first"! Molded, tapered Cyclebond brake lining. Practically eliminates squeal and grab. Extra-smooth, positive action. Extra-long life. Standard on trucks 1½-ton and up, except air brake models.



ANOTHER DODGE EXCLUSIVE! gýrol fluid drive now available on ½-, ¾-, and 1-ton models.

NEW Easier Handling! Now, even sharper turning! More comfortable steering angle and easier-operating new worm-and-roller steering gears! You also get such proved features as cross-steering, wide front tread, short wheelbase.

MORE THAN 50 BRAND-NEW IMPROVEMENTS . . . INCLUDING

- NEW! SMOOTHER RIDE
- NEW! EASIER LOADING
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- NEW! GREATER ELECTRICAL CAPACITY
- NEW! EASIER-TO-READ INSTRUMENTS
- NEW! BETTER VISIBILITY IN BAD WEATHER
- NEW! MORE EFFICIENT FUEL PUMP

See the NEW **DODGE "Job-Rated" TRUCKS** on display at your dealer's **SATURDAY, FEBRUARY 10th**

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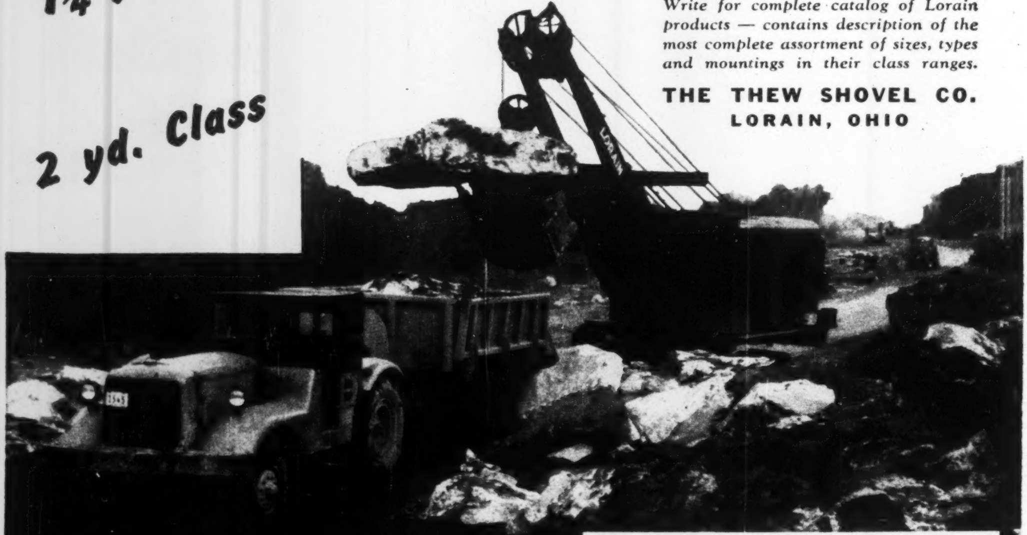

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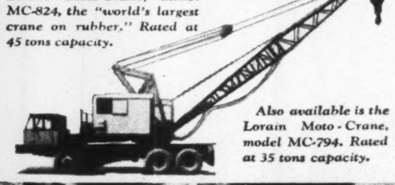
World's Largest Crane on Rubber

Lorain Moto-Crane, model MC-824, the "world's largest crane on rubber." Rated at 45 tons capacity.



Also available is the Lorain Moto-Crane, model MC-794. Rated at 35 tons capacity.

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The Great Construction Tire that does the "Impossible."

WHAT DO WE MEAN "IMPOSSIBLE"?

We mean that never before — and now for the first time — you've got a construction tire with **SUPER-TRACTION OFF THE ROAD** where you need it — with a **SMOOTH NON-SKID, LONG-WEARING ROLL ON THE HIGHWAY** when you want it.

WE ALSO MEAN you get tread compounds ***JOB-FITTED TO YOUR EXACT REQUIREMENTS***, compounds that stand up under the toughest conditions that ever faced a tire. ***THE ONLY SUCH TIRE IN THE WORLD.***

★ ***70% Deeper Traction Tread*** — this feature alone is good for up to ***50% MORE ACTUAL MILES.***

★ ***Entirely New Inner-Cavity Form*** to cut carcass strain — actually built and round-moulded to the tire's inflated shape — for today's wide-base rims. Reduces shoulder and tread stress and strain. This is how Fleetmaster can build its **EXTRA TREAD DEPTH** and **THICKER UNDER-TREAD.**

★ ***More Rubber Contacts the Road*** as mileage increases. Result? Longer wear — more miles.

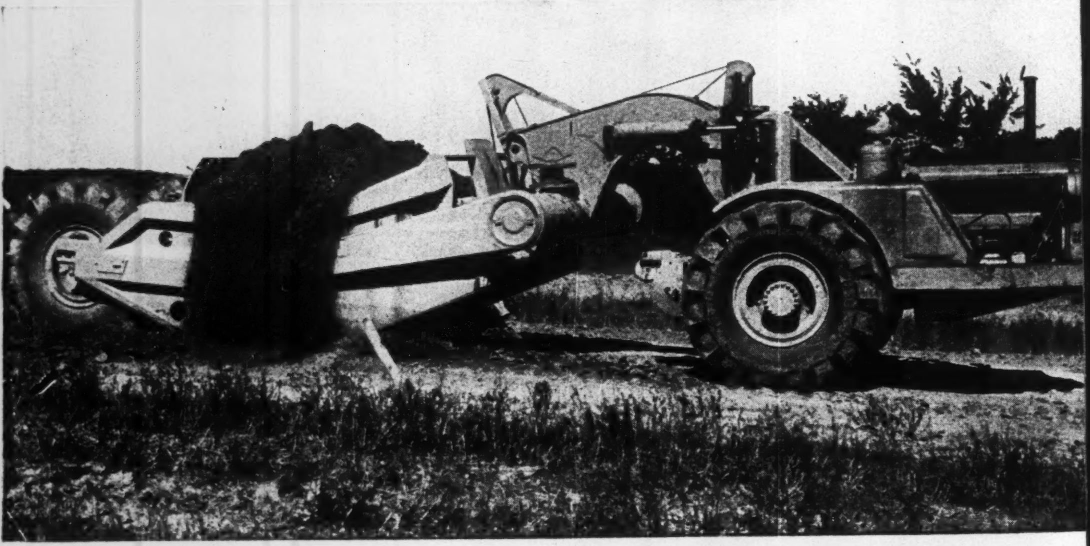
Get Our Complete Proof Demonstration Today! A Phone Call Does It—To Your Nearest U. S. Royal Dealer!

UNITED STATES RUBBER COMPANY

Big Producers!

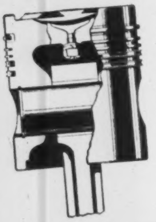
NEW "CAT" DW20 TRACTOR AND W20 WAGON

NEW "CAT" DW21 TRACTOR AND NO. 21 SCRAPER



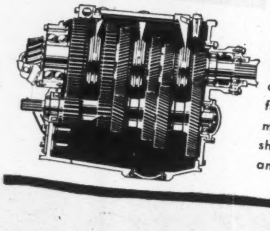
LOOK UNDER THE HIDE

PISTONS

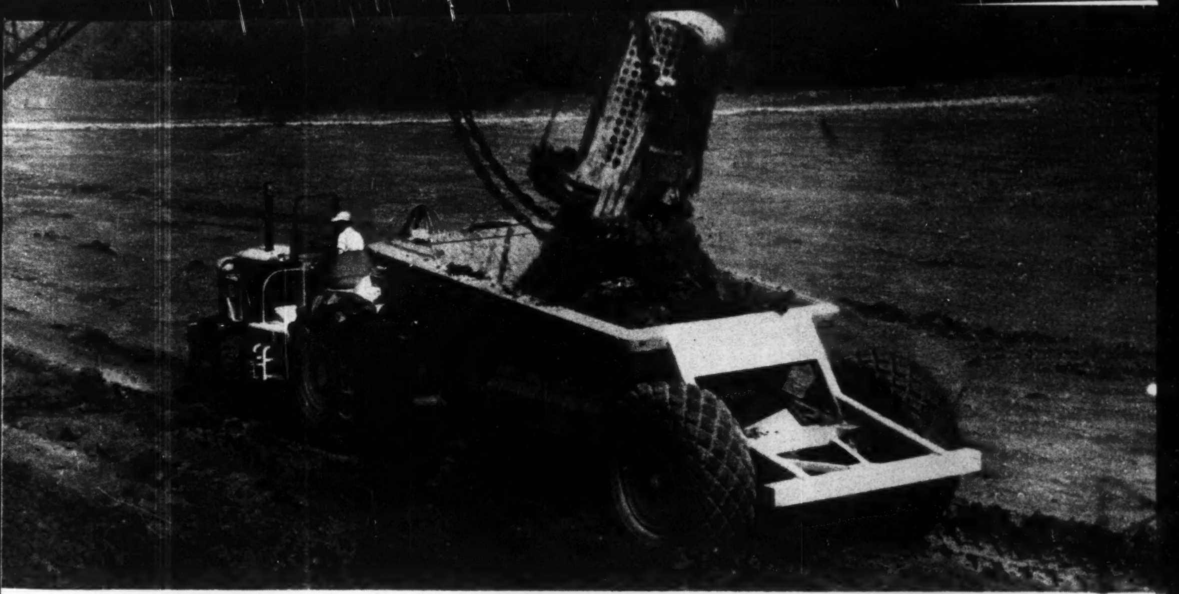


"Caterpillar" pistons are made of strong, lightweight aluminum alloy. Stationary oil jets cool pistons and lubricate piston pin and bushings. Chrome-faced top compression ring, seated in cast-iron band, insures long life and trouble-free operation.

TRANSMISSION



The "Caterpillar" transmission is of constant-mesh type with gears of high-quality, pre-tested alloy steel, heat treated for long wear. Final machining and finish shaving assure accuracy and quietness.



THESE power twins are the largest units in a complete line of "Caterpillar" equipment. They combine high speeds with high capacities to meet today's demands for increased production for both civilian and military needs. They give construction men the choice of 2 or 4 wheels in husky hustlers built to stand up under the toughest going.

For big production on long hauls, use the 4-wheel "Cat" DW20 with its top speed of 26.6 m.p.h. The DW20 offers 2 matched trailed units. The W20 Wagon—heaped capacity, 25 cu. yds. And the No. 20 Scraper—heaped capacity, 20 cu. yds. The DW20 is also available with the No. 20S Bulldozer.

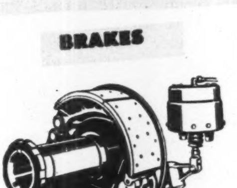
For big production on jobs best suited to 2-wheel rigs, you've got the edge with the "Cat" DW21. Trailing the No. 21 Scraper, which has a heaped capacity of 20 cu. yds., its top speed is 20 m.p.h.

Both these speedy giants are powered by the new 6-cylinder "Cat" Diesel Engine, producing 225 HP. available at the flywheel. Both can work under dragline, shovel or clamshell—and the DW21-No. 21 unit is self-loading. For complete data, see your "Caterpillar" dealer. Under today's conditions, it's a good move to talk over your requirements *now* with him. He's as close as your phone for service or information—call him today!

CATERPILLAR, PEORIA, ILLINOIS

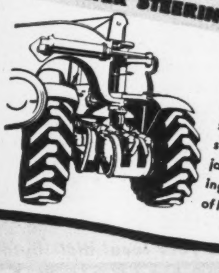
...for built-in quality!

BRAKES



Large 22-inch diameter air-activated "Caterpillar" brakes, with heavy-duty, molded linings, insure quick, smooth braking action. Independent drive wheel brakes aid in close-quarter steering.

POWER STEERING



"Caterpillar" power steering is supplied by hydraulic boosters. Natural "feel of the road" steering is retained. Heavy steel stops keep equipment from jackknifing. Mechanical steering is instantly at work in case of hydraulic failure. 90° turning.

CATERPILLAR

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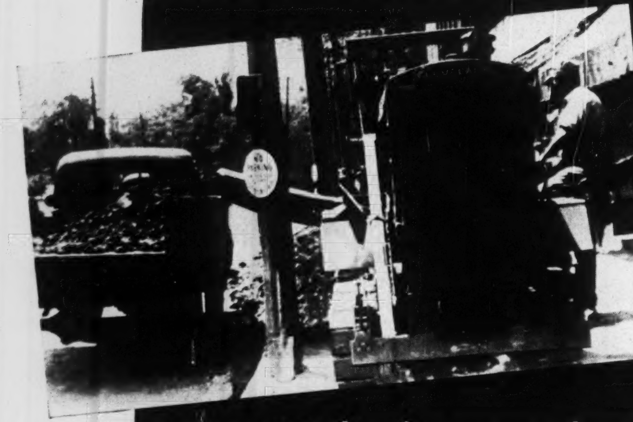
DIESEL ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

CLEVELANDS



more trench — in more places — at less cost

More trench because CLEVELANDS higher cutting capacity steadily delivers bonus yardage no matter how tough the digging conditions. More trench because rugged CLEVELANDS stay on the job, stay out of the repair shop, give you a year 'round digging season. More places because these compact, easy-handling machines work easily among crowded city obstructions—because CLEVELANDS have the high traction, perfect balance and low ground bearing pressure to handle any soil or terrain, and because CLEVELANDS load quickly for fast jumps between jobs. Less cost because CLEVELANDS well-known versatility and wide range of trench sizes cover the full range of trenching work more efficiently with fewer machines. Less cost because of CLEVELANDS established lower operating and maintenance expense. And less cost because of longer service life—as proved by the high percentage of early CLEVELANDS still in daily use.

See your local distributor for details

THE CLEVELAND TRENCHER CO.
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO

NEWS BRIEFS

Salem not so cold—Residents of Salem, Ohio, want the city's official thermometer moved away from the sewage treatment plant because evaporation of water in the plant's open tanks lowers the temperature in that locality by several degrees. Assistant City Engineer F. S. Barckhoff believes that if the instrument were placed elsewhere in the city residents would feel more comfortable this winter.

While Aquarius slept—On Jan. 8 the water system of Canton, Ill., went dry because a night watchman fell asleep at the municipal pumping station, and thus failed to shut off the plant's intake valve when the wells were full. As a result, water flooded the basement covering motors and pumps so that all water was shut off. Schools and plants were closed and housewives had no water for cooking. After several hours a fire department pumper truck started sending water into the mains.

More defense aluminum—Using standby facilities which require higher cost electric power, the Aluminum Co. of America soon will be producing added supplies of aluminum for the national defense stockpile at the rate of about 158,000,000 lb a year. The company also has an expansion plan for permanent new capacity capable of producing about 240,000,000 lb annually. This will be achieved by enlarging the smelting facilities at Alcoa's Point Comfort, Tex., plant, plus the construction of a new plant utilizing electric power generated from gas or coal.

Strengthening bridges — Pennsylvania is spending many billions of dollars to make its bridges strong enough to carry big trucks. Work on bridges over lesser streams alone is costing more than $17,000,000. Ray F. Smock, secretary of highways says: "The eventual goal is to make each of Pennsylvania's more than 21,000 state highway bridges sufficiently wide to accommodate today's traffic, with adequate overhead clearance, straight and wide approaches, and strong enough to carry a loading of 20 tons with an adequate safety margin."

Flats fixed — Here's one reason why traffic on the new Mystic River Bridge between Boston and Chelsea, Mass., is kept flowing in an unbroken stream. Since Feb. 28, last when the bridge was opened to traffic, only 610 motorists have pulled to a stop with a flat tire. In such cases, if the driver is

(*Continued on page 14*)

Now You Can Have Triple Duty!

CLIPPER MASONRY SAW QUICKLY CONVERTS TO...

Clipper® CONCRETE SAW

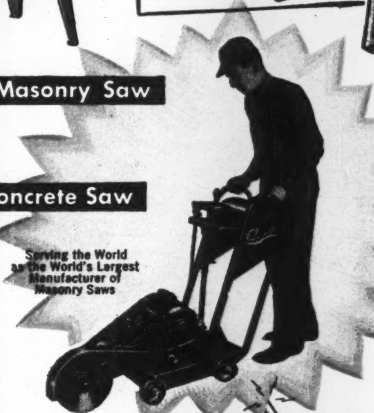
Amazing new Exclusive Clipper Design. Now the originators of Masonry Saws give you flexibility that can't be beat!

1. Model HD Clipper Masonry Saw

Nowhere in the World can you equal the Performance of Clipper for cutting Brick, Tile, Concrete Block.

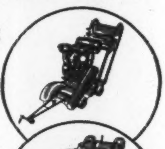
2. Now Converts to Concrete Saw

The cutting head of your Model HD Masonry Saw is quickly placed in the new CHD four wheel Cart. Roll it anywhere!


Serving the World as the World's Largest Manufacturer of Masonry Saws

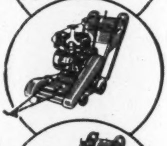
And . . . 3 ENTIRELY NEW CONCRETE SAWS–

GASOLINE OR ELECTRIC POWERED



NO. C-75

is Instantly Portable. Tops in Performance with every Clipper Feature.



NO. C-130

Power Packed to make the toughest job easy.

NO. C-15 and C-20

With special Electric Motors for tough production jobs.

Saws Concrete Like *MAGIC*

Imagine being able to use your Clipper Saw so many different ways. Saw Brick & Tile...Concrete Streets or Floors...Slabs of Stone...It's new found profits!

3. Use as Precision Track Saw.

When you are ready to saw stone or transite, merely place the Elevated Tracks over the Material and your Clipper Sails Right Thru.

Yes...NOW YOU CAN SAW ANYTHING!

PATCH

Concrete Floors, Sidewalks, Streets, or Saw Openings for Machine Bases. Rolls anywhere.

TRENCH

Saw perfect straight edges then breakout for Electric or Plumbing lines.

CONTRACTION JOINTS

Score lightly for Designs and for Dummy Joints. Saw 2" for perfect Joints.

DRIVES — WALKS

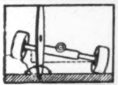
No Ragged Edges left to Aggravate Owners. Finish like New with new found Profits.

Patent Numbers 2338318, 2455113, 2492684 — Other Patents Pending—Printed in U.S.A.

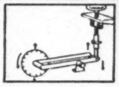
Genuine Clipper Blades Available for every cutting job.

1. Bronze Bond Diamond Blade
2. Nickel Bond Diamond Blade
3. Steel Bond Diamond Blade
4. Wet Cutting Abrasive
5. Dry Cutting Abrasive
6. CBR Breakage Resistant

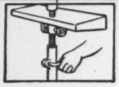
EXPERIENCE PROVES A CONCRETE SAW MUST HAVE THESE CLIPPER FEATURES:



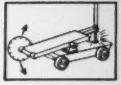
1. Clipper "No Bind" Floating Three Point Suspension Automatically protects blade.



2. Positive Screw Feed Instant control raises or lowers blade smooth, easy.



3. Adjustable Depth Lock. Set this handy stop for whatever depth desired.



4. Pressure Equalizer Automatically cushions pressure on abrasive blades *(Models CHD, C-15, C-20)

SOLD ONLY DIRECT FROM CLIPPER FACTORY BRANCHES

Clipper®

NATION-WIDE DIRECT FACTORY SERVICE

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You Can Test—Actually Try A Clipper Concrete Saw On Your Job Without Obligation. It's Your Guarantee Of Perfect Performance.

MAIL COUPON NOW... for full details on...... FREE TRIAL

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CONCRETE SAW DIVISION
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Send FREE—literature, information, and prices on the NEW—CLIPPER CONCRETE SAWS

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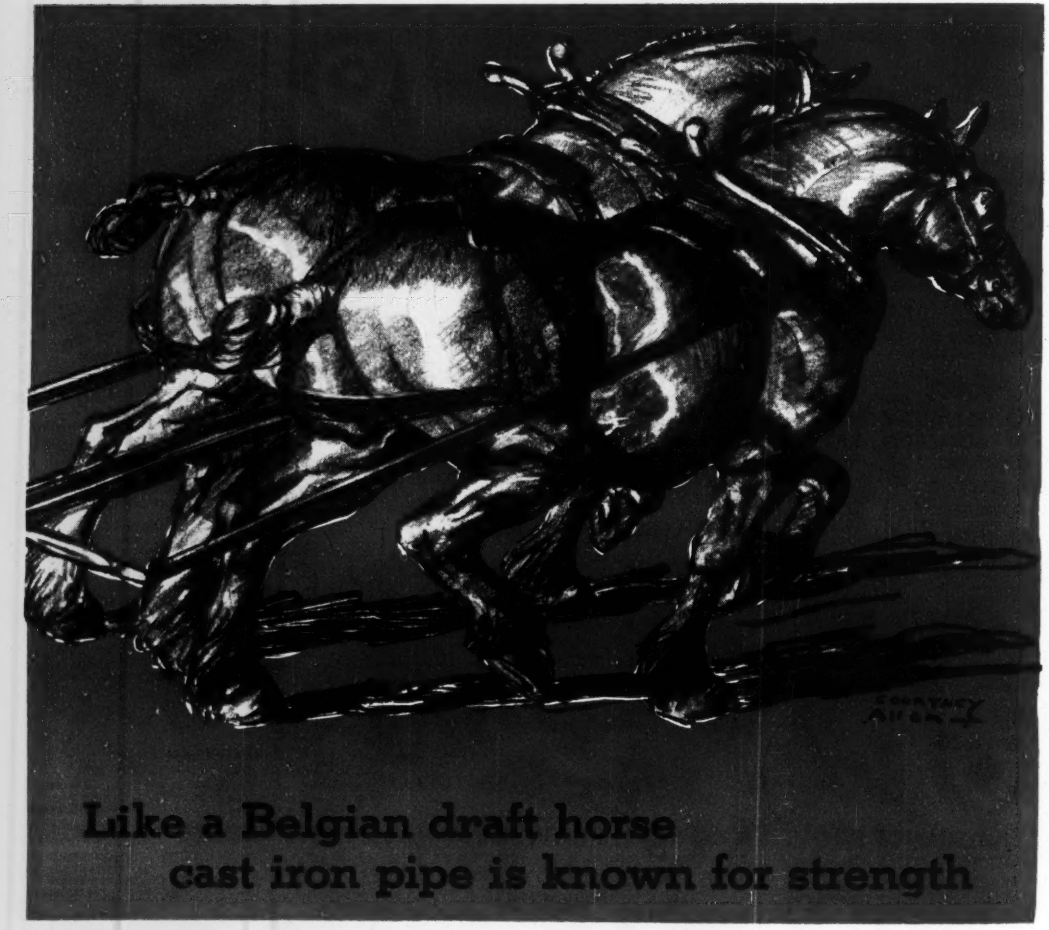
COMPANY ____________________
STREET ____________________
CITY ____________________ STATE ____________

STRENGTH is vital



Like a Belgian draft horse cast iron pipe is known for strength

Be doubly sure when you specify pipe for mains to be laid under city pavements. Sure that it effectively resists corrosion. Sure, also, that it has the four strength factors, listed opposite, that pipe must have to withstand beam stresses, external loads, traffic shocks and severe working pressures. *No pipe, deficient in any of these strength factors, should ever be laid in paved streets of cities, towns or villages.* Cast iron water and gas mains, laid over a century ago, are serving in the streets of more than 30 cities in North America. These attested service records prove that cast iron pipe not only assures you of effective resistance to corrosion but all of the vital strength factors of long life and economy.

in pipe for city streets

No pipe that is deficient in any of the following strength factors should ever be laid under paved streets.

CRUSHING STRENGTH

The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.

BEAM STRENGTH

When cast iron pipe is subjected to beam stress caused by soil settlement, or disturbance of soil by other utilities, or resting on an obstruction, tests prove that standard 6-inch cast iron pipe in 10-foot span sustains a load of 15,000 lbs.

SHOCK STRENGTH

The toughness of cast iron pipe which enables it to withstand impact and traffic shocks, as well as the hazards in handling, is demonstrated by the Impact Test. While under hydrostatic pressure and the heavy blows from a 50 pound hammer, standard 6-inch cast iron pipe does not crack until the hammer is dropped 6 times *on the same spot* from progressively increased heights of 6 inches.

BURSTING STRENGTH

In full length bursting tests standard 6-inch cast iron pipe withstands more than 2500 lbs. per square inch internal hydrostatic pressure, which proves ample ability to resist water-hammer or unusual working pressures.

CAST IRON PIPE RESEARCH ASSOCIATION, THOS. F. WOLFE, MANAGING DIRECTOR, 122 SO. MICHIGAN AVE., CHICAGO 3.

CAST IRON PIPE SERVES FOR CENTURIES

a young man, guards protect him from passing traffic as he makes the change. However, if it's a woman or an elderly man, attendants make the change. It's a free service maintained by the Mystic River Bridge Authority.

No refugees—Mayor Bayt of Indianapolis, Ind., replying to an urgent appeal from top-ranking Indiana Air National Guard officers asking him to indorse federal reactivation of Stout Field and the ousting of 475 families living in the area, said it was impossible to support plans to evict 2,200 people from Tyndall Towne within 60 days. The mayor said the plan might be worked out in eight months or a year.

Bombs away!—In the island of Rhodes, British possession in the eastern Mediterranean, a casual comment by a farmer recently resulted in the abrupt halting of work on an airport runway and the discovery of 42 large bombs buried directly in the path of oncoming bulldozers. Preliminary grading had begun on a 6,000-ft Marshall Plan-sponsored runway at Maritso Field. John P. Asher, Marshall Plan field representative, inspecting progress of the work, stopped to chat with a farmer, whose interest in the new strip changed to alarm as Asher pointed out the planned location. "You can't go digging in that place," the farmer said. "The Italians buried 42 bombs there, all hooked up with wires, so the airport could be blown up if invaded. But somehow they never used them." Cautious digging proved the farmer's story true, and when Asher and the engineers stopped mopping their brows they sent out a hurry-up appeal to the Greek army for a bomb-disposal squad.

Bus re-incarnation—Four old Buffalo, N. Y., buses that once appeared headed for the junk pile have been given a new lease on life. Seigfried Construction Co., Inc., bought them and has converted them for use in its business. One has become a mobile, on-the-job construction office. The others have become mobile construction "shanties" in which workers can change their clothes and eat lunch. The movable office and one of the shanties were put to use for the first time when the company began building a $1,000,000 electronics plant for General Electric Co. in Auburn, N. Y.

Correction—The successful air search for the lost steel of the Chesapeake Bay Bridge was conducted by the U. S. Geological survey, not the U. S. Coast and Geodetic Survey as stated in ENR Jan. 4, p. 29.

for
MUNICIPAL PAVING
HIGHWAY WIDENING
and PATCHING
BRIDGE DECKS
SPILLWAYS
and
MANY OTHER JOBS

The JACKSON

ELECTRIC, VIBRATORY SCREED is FAR FASTER-BETTER!

It strikes off to any crown, undercuts at curb or sideform, works right up to and around manholes and other obstructions. With it center construction joints may be eliminated and full widths (up to 30') poured. Requires only two men on widest slab, due to strong tendency to propel itself. It's the only screed that can be rolled back on 4 rollers for second pass. Contractor has only to secure plank cut to proper length and crown to be set for any job. Powered by Jackson 1.25 KVA Portable Power Plant.

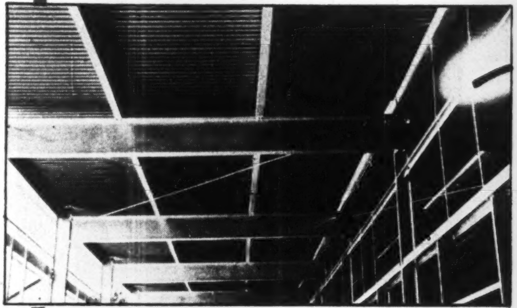
IDEAL VIBRATORS FOR EVERY TYPE OF JOB

1. Power Plant used with Screed, 1.25 KVA. Others of 2.5 and 5 KVA capacity — all produce both single and 3-phase 110 V., 60 C. AC and have generators requiring no maintenance or adjustment. 2. Hydraulic vibrator with time-saving 50' reach. 3. Powerful, easy to handle electric Vibrator — shafts up to 28'. 4. Finest of engine-driven flexible-shaft vibrators. 5. Revolutionary, fast, granular soil vibratory compactor. 6. Heavy-duty mass construction vibrator — a "must" on dams, etc. 7. Sideform Vibrator, mounts on finisher, saves better part of 2 men's labor. Write for "Pocket Guide" describing the entire line.

FOR RENT OR SALE AT JACKSON DISTRIBUTORS

ELECTRIC TAMPER & EQUIPMENT CO.
LUDINGTON MICHIGAN

A ROOF DECK OF STURDY STEEL

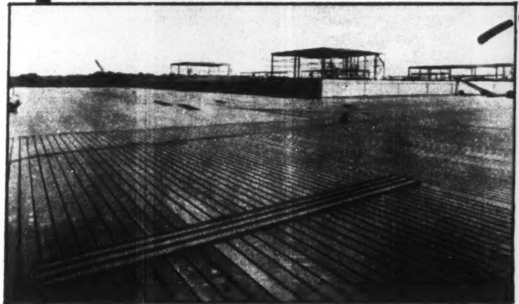


—is lighter!

A roof built with steel roof deck saves weight *two* ways. First, because of the lightness of Wheeling Tri-Rib Roof Deck itself, the weight of the entire roof is reduced. Second, because the smaller dead load allows use of lighter beams, columns and footings, the over-all weight is also reduced.

—quicker to install!

Wheeling Tri-Rib Roof Deck Sheets are quickly laid and are fastened by either welding or clipping. The sheets are easy to handle because of light weight, yet are large enough to give fast coverage of wide areas. Roofing with Tri-Rib also means losing less time in bad weather.



—costs less!

A roof of Tri-Rib usually costs less than any comparable roof, and saves money in permitting lighter supporting members. Made of Cop-R-Loy, the Copper Alloyed Steel, Wheeling Tri-Rib Steel Roof Deck is designed in accordance with specifications adopted by A.I.S.I. for light gauge structures, dated January, 1949.

For specifications, consult Sweet's Files, or write us.

Build with Wheeling Tri-Rib Steel Roof Deck!

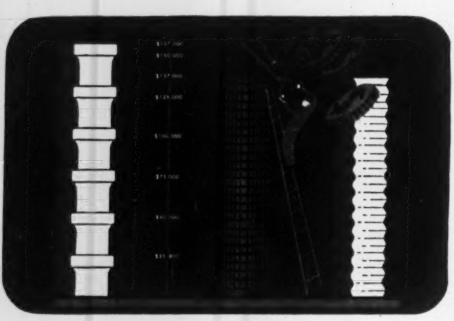
WHEELING CORRUGATING COMPANY
WHEELING, WEST VIRGINIA

ATLANTA BOSTON BUFFALO CHICAGO COLUMBUS DETROIT KANSAS CITY LOUISVILLE
MINNEAPOLIS NEW ORLEANS NEW YORK PHILADELPHIA RICHMOND ST. LOUIS

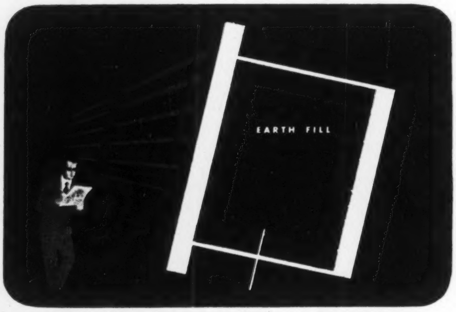
W
Wheeling

How to profit with "low level bids"

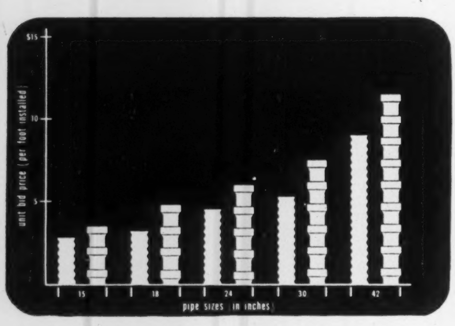
Experienced contractors bid to get the job and *retain adequate profits*. That is why so many practice "low level bidding" by considering the time and labor saving features of Armco Metal Structures. Here are four actual cases:



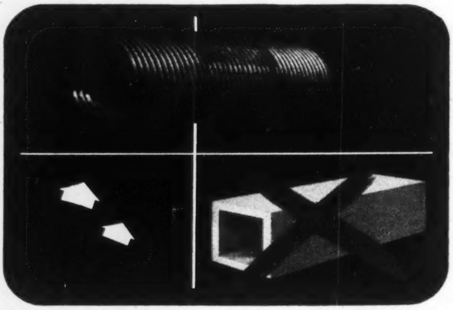
CASE I. The successful bidder on more than 22 miles of highway subdrainage for an eastern state figured the job two ways. First, he bid the job with short section, rigid pipe. Then by figuring an alternate bid using Armco Corrugated Metal Pipe he reduced his original estimate by more than $19,000.



CASE II. When a retaining wall was needed on a southeastern highway project the original plans called for monolithic design. The contractors bid price on the monolithic structure figured approximately $9.00 per square foot of facial area. By figuring the job with an Armco Bin-Type Wall the competitive and accepted bid was only $4.70 per square foot—almost 50% lower.



CASE III. Actual low bids on a midwestern drainage job show how experienced contractors bid Armco Corrugated Metal Pipe and short, sectional pipe on an installed basis. Averages for the total job indicate that it was considered necessary to bid 33.8% higher to install short, sectional pipe.



CASE IV. On drainage work for a southern highway the winning contractor was able to bid 26% lower for Armco MULTI-PLATE PIPE-ARCH than competing bids for a monolithic box structure.

Figured on an installed basis, Armco structures save money in many ways. Flexible, corrugated metal design assures ample strength without excess weight. There is no breakage, no curing, no waste, no delay. Handling is simplified—labor costs go down.

Use Armco Products on highways, railways, airports and wherever else you need economical, easy-to-install structures. Armco Drainage & Metal Products, Inc., 1901 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

ARMCO METAL STRUCTURES

ARMCO

THE CONSTRUCTION WEEK

REQUIREMENTS TAKING SHAPE—By the middle of February, mobilization officials expect to have complete estimates of military requirements to June 30, 1952. They can then get down to the business of slicing what is left of the production pie for civilian uses. The slices will go to things considered essential for sustained economic growth and for the health, safety, welfare and morale of the population.

HEAVY BITE ON EQUIPMENT—Army-Navy-Air Force orders will take up to 70% of construction machinery production during the next 24 months. Orders are now being placed at a rate exceeding $30 million a month. That rate will be doubled.

DEMAND ON SOME PLANTS TO BE 100%—Military requirements will pre-empt the full productive capacity of some construction equipment shops. Manufacturers whose entire output is commandeered thus may be able to expand capacity for some civilian needs—provided they can find fully-tooled, vacant plants that can be converted. There will be little chance in the next 18 months for any manufacturer to build and equip a new plant purely to serve civilian needs.

NEW ENGLAND CAMPAIGN UNABATED—Following the successful drive to get a steel mill into the area, New Englanders now want an aluminum fabricating plant, followed later by an aluminum reduction plant. Senators Margaret Smith of Maine and Charles Tobey of New Hampshire are claiming special advantages for their respective states as the eventual site. Kaiser Aluminum & Chemical Corp. is said to be interested.

CEMENT SPILLING OVER—Cold weather has put reverse English on the cement shortage. Several mills, scattered in different parts of the U. S., are closing down because their storage silos are full.

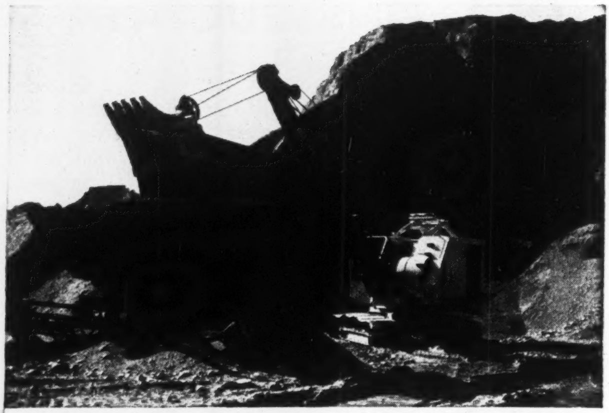
OIL GETS STEEL—Fast-rising consumption of oil products, and the possibility of seizure by the Russians of the great oil fields in the Middle East, are said to be behind the decision by NPA finally to allocate enough tubular steel products to drill 43,400 new wells in the U. S. during 1951.

HIGHWAYS ARE NEEDED TOO—U. S. Chamber of Commerce urges full maintenance of the nation's highways, during the mobilization period, with concentration upon the 38,000-mile interstate system. Roads should be kept in shape to carry their share of the load, along with railroad, water and air transportation.

CAUTIONED ON ROAD PROJECTS—The Bureau of Public Roads has instructed its division engineers to be cautious about approving new federal-aid projects for construction. Proposed construction hereafter will be examined to be sure that the improvements will serve the defense effort and won't require an unwarranted amount of essential materials, such as steel.

BUILDING CREDIT CONTROLS—Federal Reserve Board is working on credit controls for commercial building—a job assigned it by the Defense Production Act. Three groups, lenders, builders and labor, have been in Washington to talk things over. With the NPA freeze in effect, the board has until Feb. 15 to provide an answer. If it decides to impose credit regulation, the board can go further than it did on rental housing by setting both down-payment and short-term mortgage requirements for sponsors.

PROFITS start here with a BAY CITY



With a Bay City Model 65 on the job, you can load out more sand and gravel at lower cost and realize a higher profit in your pit operations . . . an important consideration that affects the profit & loss picture for your whole business. Low operating and maintenance costs make this a favorite with owners like Lyle Walker who has just put a new Bay City high-lift shovel to work in his New Hudson, Michigan pit. Shown in operation in these two photos, this 1¼ yard shovel is engineered from crawlers to boom-point for long life and dependable service. The 65 is a fast, sturdy machine with plenty of exclusive Bay City features such as helical cut gears for quiet, smooth operation . . . tandem drums on separate shafts . . . wide brakes and booster operated clutches . . . powerful one-piece chain crowd. If you're planning to invest in a shovel . . . investigate Bay City to keep your operating costs down and your profits up. See your nearest dealer or write us here in Bay City for full facts.

BAY CITY SHOVELS INC., Bay City, Michigan

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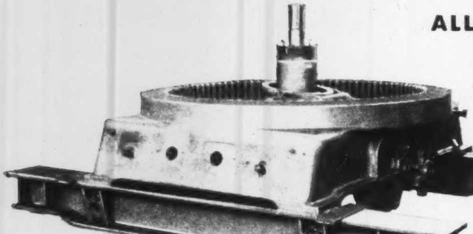
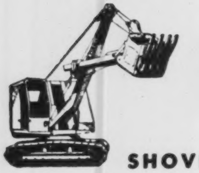


ALLOY STEEL CAST BASES

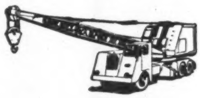
Both upper and lower bases of the Bay City 65 are unit cast alloy steel construction for desirable weight and sturdiness to absorb shock and vibration of heavy-duty service. On the one-piece lower base shown here note the big, husky center post and the large diameter tapered roller path that is an integral part of the casting. Heavy duty design and construction can be found throughout the 65.

✓ CHECK LIST

- Fully Convertible
- Long, Wide Crawlers
- Tandem Drums
- Power Booster Clutches
- High Line Speeds
- Wide Vision Cab

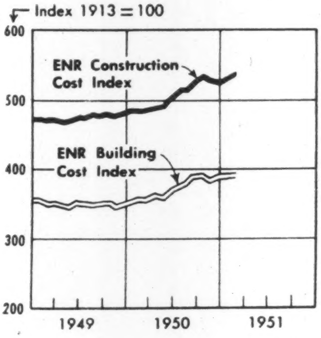


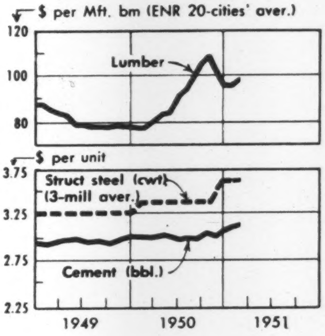
BAY CITY

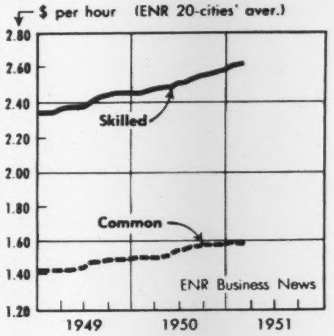


SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

FEBRUARY CONSTRUCTION SCOREBOARD



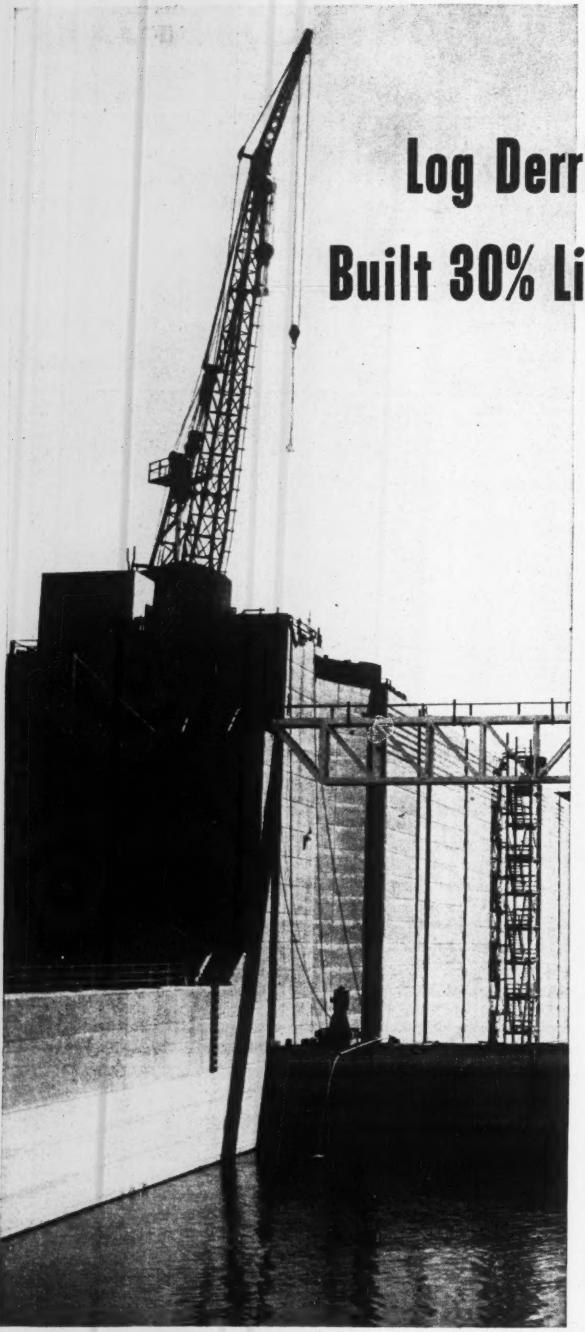




ENR INDEXES (1913 = 100)	Feb. '51	Jan. '51	% Change	Feb. '50	% Change
Construction Cost	536.74	530.73	+1.1	481.85	+10.7
Building Cost	396.95	391.79	+1.3	356.48	+11.4
MATERIAL PRICES (20-cities' average)					
Cement, bulk, per bbl	3.145	3.126	+0.6	2.955	+ 6.4
Structural Steel, (3-mill aver.), per cwt	3.650	3.650	0.0	3.400	+ 7.3
Sand, per ton	2.085	2.073	+0.5	1.963	+ 6.2
Lumber, 2x4 Fir, per M. ft. bm	107.970	102.598	+5.2	84.441	+27.9
Lumber, 2x4 Pine, M. ft. bm	92.000	89.511	+2.8	74.650	+23.2
Common brick, per M	30.725	30.275	+1.5	27.906	+10.1
Ready-mixed concrete, per c. y	10.904	10.760	+1.3	10.397	+ 4.9
Structural Clay Tile, 3x12x12 per M	138.940	135.624	+2.4	132.867	+ 4.6
WAGE RATES (20-cities' average)					
Common	1.593	1.585	+0.5	1.485	+ 7.3
Skilled (aver. 3 trades)	2.615	2.601	+0.4	2.466	+ 6.0
Bricklayers	2.895	2.882	+0.4	2.721	+ 6.4
Structural Ironworkers	2.559	2.551	+0.3	2.436	+ 5.0
Carpenters	2.390	2.380	+0.4	2.242	+ 6.6

	January		%	Twelve Months		%
CONTRACTS AWARDED (thous.)	1951	1950	Change	1950	1949	Change
Total U. S. (ENR reported)	$1,266,892	$915,475	+ 38.4	$12,351,607	$8,157,403	+51.4
Private	682,593	428,051	+ 59.5	6,670,476	3,862,238	+72.7
Public	584,299	487,424	+ 19.9	5,681,131	4,295,165	+32.3
Federal	283,595	275,584	+ 2.9	1,896,631	1,184,745	+60.1
ENR Constr. Volume Index, '13 = 100	665	517	+ 28.6	503	345	+45.8
NEW CONSTRUCTION CAPITAL						
Total,	2,987,845	297,184	+905.4	9,027,987	7,343,747	+22.9
State & Municipal Bond Sales	137,605	222,484	− 38.2	3,119,102	3,040,711	+ 2.6
Corporate Security Sales	174,355	74,700	+133.4	2,557,791	2,169,812	+17.8
Federal (non-federal work)	73,425	....	....	522,000	385,000	+35.6
Federal (federal work)	2,602,460	....	....	2,829,094	1,748,224	+61.8

	December (D) November (N)		%	Twelve Months (12) Eleven Months (11)		%
MATERIAL SHIPMENTS & LABOR SUPPLY	1950	1949	Change	1950	1949	Change
Cement, thous. bbls., Bu. of Mines	19,791(N)	17,269(N)	+14.6	215,311(11)	194,565(11)	+10.7
Fabr. Struc. Steel, thous. tons, AISC	175(D)	136(D)	+28.7	1,932(12)	1,854(12)	+ 4.2
Lumber, mil. ft. bm., NLMA	3,285(N)	3,209(N)	+ 2.4	36,841(11)	38,996(11)	+27.1
Lumber Prod., mil. ft. bm., NLMA	3,356(N)	2,947(N)	+13.9	36,372(11)	29,031(11)	+25.3
Contract Constr. Employ., thous. BLS	2,347(D)	2,087(D)	+12.4	(Av.) 2,298(12)	(Av.) 2,155(12)	+ 6.6



Log Derrick for McNary Dam Built 30% Lighter with Mayari R

The 56-ft mast and 60-ft boom of this new log derrick at McNary Dam were built from Bethlehem's Mayari R low-alloy, high-strength steel. Used for placing temporary gates in the spillways when removal or repair of the permanent gates is necessary, this derrick will lift a load of 80,000 lb with the boom in a horizontal position. The use of Mayari R enabled the designers to provide this lifting capacity and at the same time reduce the deadweight of the machine by 30 pct.

Mayari R has more than 1½ times the yield point of structural-grade carbon steel, permitting the use of higher working stresses to reduce deadload. It also has 5 to 6 times the resistance to atmospheric corrosion of carbon steel, which means that equal or better service life can be expected even though lighter sections of Mayari R are used.

Other important advantages of this versatile steel include superior paint-retention and better resistance to abrasion, battering and denting. It is used in the as-rolled condition, requiring no heat-treatment and no special shop equipment for fabrication.

More information on Mayari R is yours for the asking. Write or phone for Catalog 259.

◀ Mayari R log derrick for McNary Dam designed and fabricated by the Washington Iron Works, Seattle.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Mayari R *makes it lighter... stronger... longer lasting*

EDITORIALS

ENGINEERING NEWS-RECORD

St. Lawrence seaway prospects

President Truman has again urged Congress to clear the way for the ship canal and power project in the international section of the St. Lawrence River. He sees immediate need for both the power and a modern ship canal to permit iron ore from the new mines in eastern Canada to move up into the Great Lakes.

By a curious coincidence this latest proposal to start a project that will take about five years to complete comes at a time when this nation is undertaking rapid expansion of its defensive facilities and is planning to postpone all work that does not contribute to the immediate defense effort—similar to what was undertaken when the late President Roosevelt was urging Congress to start the St. Lawrence project just before the outbreak of World War II. Now, as then, neither the power nor the ship canal could possibly be ready in time to contribute to the current defense program. Both could divert men and materials badly needed for projects that can be built in much less time. In 1942 the decision was against start of the work.

This time Congress has an added factor to consider—the possibility of having to keep this country's defensive potential on a high level for many years. Does that factor favor starting the project now?

We do not believe that it does. Whether the project is ready to pass large ships or to deliver power in 1956 rather than in 1957 does not appear important to the defense mobilization. What does seem important to our long-range planning is to get the project ready so that it can be started just as soon as we are past the present peak of building new defense plants and new steel mills. That time might well be as close as the spring of 1952. There is much that can be done in the intervening months to pave the way for a prompt start when men and materials are available. The outmoded 1941 agreement between this country and Canada—which is still before Congress—should be rewritten to bring it up to date, and decision should be made as to who is to build both the navigation and power facilities.

Higher stresses for A305 bars

At its annual meeting in San Francisco two weeks hence, the American Concrete Institute will consider an important revision of its building code requirements for reinforced concrete. Based on results of many tests, this revision will grant higher bond stresses for reinforcing bars meeting American Society of Testing Materials Specification A305. If the ACI membership approves it, the way also will be paved for an increase in allowable tensile unit stresses for A305 bars.

One of the biggest drawbacks to higher tensile stresses in reinforcing steel has been the possibility of noticeable cracks forming in the concrete. If, for example, a bar is stressed to 20,000 psi, the strain is 0.0007 in. per in., about three times what ordinary concrete can withstand without cracking. For a strained length of 1 in., the crack would be 0.0007 in. wide, but with the A305 bars, large, closely spaced deformations grip the concrete; the strained length may be less than ½ in. and the crack less than 0.00035 in. wide. This has been verified by many laboratory tests.

The old arguments concerning excessive cracking of concrete with higher steel stresses apparently do not apply to the A305 bars. Therefore, consideration should be given to permitting higher allowable tensile stresses for A305 reinforcing bars, providing the safety factor of the structure would not thereby be reduced. In view of current shortages of steel, such a step is particularly desirable right now.

In fact, it's quite possible that before long government agencies concerned with conserving steel may seek to establish higher working stresses for reinforcing bars. These agencies would most certainly be helped by any prior accomplishments in this direction by the ACI and other technical organizations. The ACI can aid the defense effort by approving the code revision permitting higher bond stresses and by starting work at this annual meeting on a code revision increasing tensile stresses for A305 bars.

Better contractor inter-relations

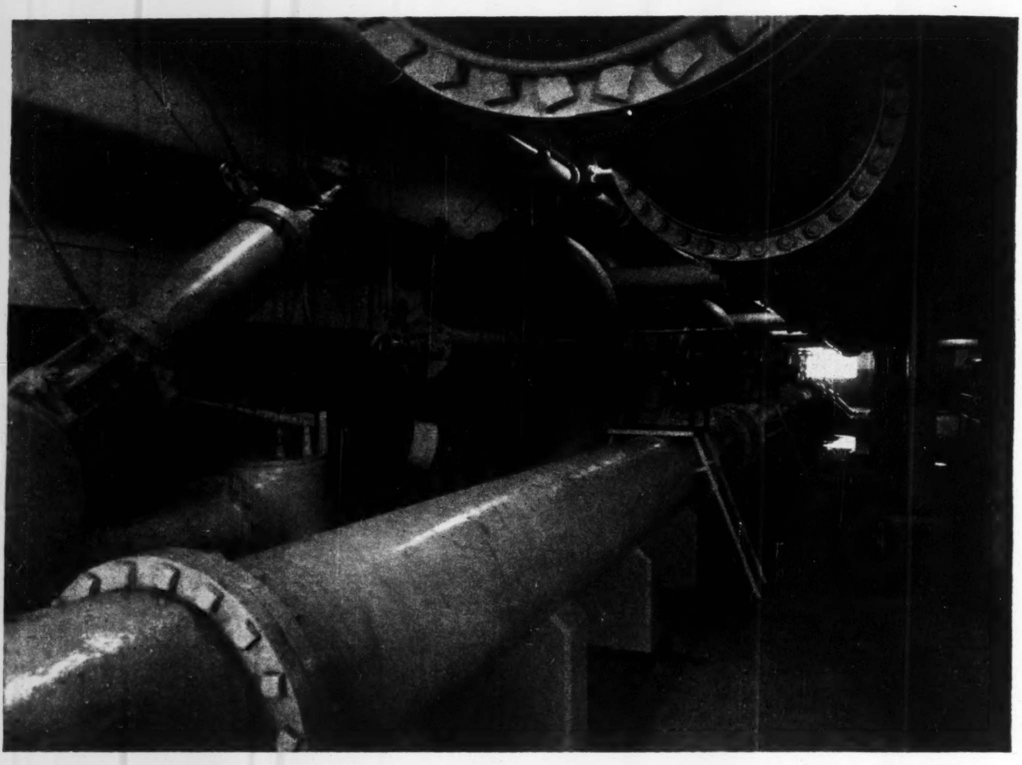
From Minnesota comes a ray of hope in the eternal conflict between contractors and their subs. That state's Associated General Contractors chapter has established a trade practices committee, aimed at improving relations with subcontractors and specialty contractors (p. 26).

The committee probably will and certainly should attack the sources of bad relations—sharp renegotiation of subcontracts by successful bidders, and the efforts of specialty contractors to get laws passed requiring that there must be separate contracts for this work.

No doubt most contractors are fair in their negotiation of subcontract prices. But it only takes a few who are not fair to the subcontractors to give them convincing arguments with which to persuade legislators that separate contracts for their types of work would eliminate "chiseling" by general contractors.

The ideal way to stamp out chiseling would be to eliminate the practice of post-award negotiation. (Some smart contractors have done this. Their subs know it and make initial bids accordingly.) But sellers and buyers being what they are and always have been, most subcontractors and contractors will hang on to all their rights to haggle.

The Minnesota general contractors have taken a real step toward contractor-subcontractor peace. May they exploit the step fully. And may more trade practices committees be established.



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ENGINEERING NEWS-RECORD

FEBRUARY 8, 1951 Vol. 146 NO. 6

Bridge collapse in Quebec charged to brittle steel

Duplessis Bridge at Three Rivers had shown signs of failure a year ago—Four of eight spans of western half of structure drop to icy river—Death toll at least four

Frederick S. Merritt
Associate Editor

A major Canadian highway bridge collapsed at 3 A.M. on Jan. 31 in 30-deg-below-zero weather.

Several official investigations to determine the cause of the collapse are planned. In the meantime, nothing definite is known as to what actually happened—even sabotage has been suggested.

But to this observer, it appears that the disaster could have been due to a combination of low temperature and bad steel—though nothing official is being said about the steel.

The structure that collapsed was part of the Duplessis Bridge, completed in the fall of 1947. It carried four lanes of traffic over the mouth of the St. Maurice River, between Three Rivers and Cap de la Madeleine, Que., on Highway 2, about halfway between Montreal and Quebec.

Construction cost was $3,000,000.

Actually, the Duplessis Bridge consists of two bridges—a west crossing and an east crossing—and a roadway fill on St. Christophe Island in mid-river. The west crossing failed.

• **Long continuous span**—This westerly structure, 1,380 ft long, was continuous over eight spans. Of welded plate-girder deck construction, it was composed of two girders, 32 ft apart, having six 180-ft spans and two 150-ft flanking spans, and of cross beams at 10-ft intervals. It carried a 42-ft wide, 8-in. thick concrete roadway, and two 5-ft sidewalks. (See The Engineering Journal of the Engineering Institute of Canada, Jan. 1949, P. 10).

The Bridge was designed for alternative loadings of one 20-ton truck per lane plus 30% impact and a uniform load of 100 psf on the beams and 70 psf on the girders. Allowable tensile stress was 20,000 psi, and the allowable compressive strength was a maximum of 20,000 psi, with the usual reduction for buckling.

The west bridge rested on seven concrete piers, varying in height from 40 to 56 ft. The center pier carried a fixed bearing. Other girder supports were on rollers.

Consistent with the continuous-girder design, bottom flanges of the girders were parabolic. The 180-ft spans were 12 ft deep at the piers and 8 ft deep at midspan. Stiffened by intermediate stiffeners at 5-ft intervals, the web was $\frac{3}{8}$ in. thick. For appearance, these stiffeners were placed on the interior face of the girders only.

The girders were also stiffened at cross beams by solid-web knee braces extending to the top of the bottom flange.

Due to the fairly large downgrade of 1.5% for most of the length of the west crossing (the section that failed, however, was nearly level), the designers found it desirable to assure that no creeping of the floor slab occur because of failure of bond with the top flange of the girders. Hence, 1-in. wide, $\frac{3}{4}$-in. deep bars, 12 in. long, were welded to the top flanges midway between each cross beam. Also, tension plates connecting the cross beams with cantilever brackets supporting the outer $10\frac{1}{2}$ ft of deck acted as shear lugs.

• **Designers and builders**—The two bridges were built by the Department of Public Works of the Province of Quebec, under the direction of Romeo Lorrain, minister, and Ivan E. Vallee, deputy minister, who acted also as consulting engineer. The design was prepared by the engineering staff of the department. During construction, J. M. Reid served as resident engineer.

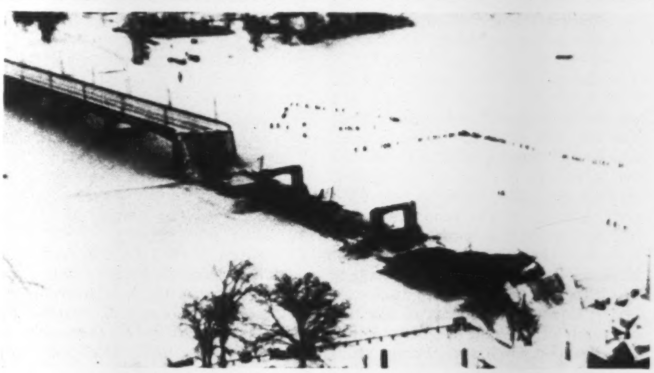
Construction was carried out by the Dufresne Engineering Co., Ltd., of Montreal. The steel superstructures were fabricated and erected by the Dominion Bridge Co., Ltd., Lachine, P. Q.

• **Sudden collapse**—At 3 A.M. on Jan. 31, the westerly half of the west crossing dropped into the St. Maurice, the break stopping at the fixed-bearing on the center pier. The end span is reported to have pulled away about 70 ft from the west abutment. And a reinforced concrete bent forming the top portion of the westernmost pier appears to have been demolished.

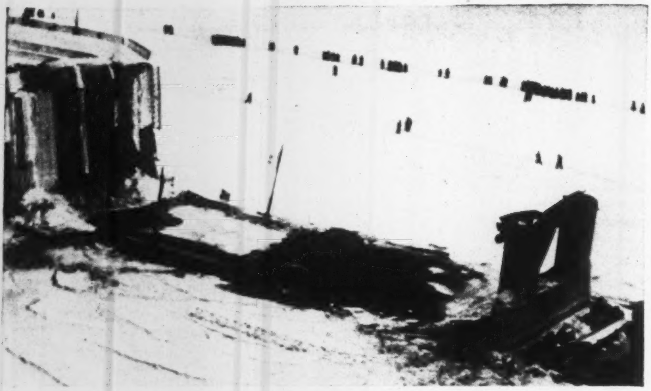
Since the collapse occurred early in the morning, traffic on the bridge was negligible. Also, because of the early hour, there do not seem to have been any eyewitnesses. The temperature at the time was close to 30 deg. below.

Because of the emergency, an im-

(Continued on page 24)



FOUR SPANS of an eight-span continuous girder bridge rest in the ice of the shallow St Maurice River at Three Rivers, Que., after an early-morning collapse. Ice is thick enough to support pedestrians (Wide World Photo).



BREAK STOPPED at fixed bearing on center pier of structure. Roadways went down almost intact, with light standard rails, still upright (Wide World Photo).

Brittle steel seen cause of failure

(Continued from page 23)

mediate investigation of the cause could not be made. First effort of the authorities was directed toward aiding the injured and recovering the bodies of victims. Next, steps were taken to establish an ice bridge for pedestrians. Meanwhile, vehicular traffic had to detour at least 40 miles.

The Dominion Bridge Co. expects to have a Bailey bridge, probably on pontoons, across the gap within two weeks. Then, the job of replacing the bridge will be undertaken. Finally, the broken girders will be fished out of the river and efforts made to determine the reasons for the collapse.

Until this is done, and until sabotage is definitely ruled out, it can only be guessing to say that the failure was due to structural inadequacies However, the bridge was in trouble early last year—also in very cold weather. Studies made to determine the source of those difficulties pointed to faulty material ("Canadian Welded Girder Bridge Practices," by D. B. Armstrong, presented at the 30th Annual Meeting of the Highway Research Board, Jan., 1951). While there may not have been any connection between the previous failures and the bridge collapse on Jan. 31, these studies suggest that failure due to a combination of low temperature and bad steel was highly probable.

- **Faulty material found**—In Feb., 1950, 27 months after completion of the bridge, a fracture was discovered in the downstream girder in the second span of the east crossing. While emergency repairs were being made, a similar but less serious fracture was found at the identical location in one of the 180-ft span of the west crossing which collapsed on Jan. 31. Both fractures originated in the top flange, about 11 ft 6 in. from a pier, where 2½-in. plate was butt welded to 2-in. plate in a negative-moment region.

In the east crossing, the crack started in the 2½-in. plate close to the heat-affected zone, tore and buckled the web and bent and cracked the bottom plate. The broken girder remained cantilevered and partly supported through the rigid floorbeam connections and by a kneebrace that acted as a hanger across the gap.

In the west crossing, the fracture started in the 2-in. plate about ½ in away from the heat-affected zone and stopped above the middle of the girder. Further failure was prevented by the combination of sheer lugs on the girder flanges and the tension action of the slab reinforcement; that is, the roadway apparently served temporarily as the top flange of the girder. Apparently, also, the roller bearings and finger joints of the expansion joints at bridge ends were functioning properly, since no report was made that they were not.

According to the Highway Research Board paper, no cause, other than faulty material could be found even remotely responsible for having initiated the cracks in these flange plates. Laboratory tests showed the plates to be of poor quality rimmed steel. (This is steel that has not been completely deoxidized before casting. Gas is evolved during solidification and bubbles are entraped.) The plates contained high local concentrations of carbon (up to 0.40%) and sulfur (up to 0.116%), with stringers of slag segregations in the core. Yield points varied from 27,800 psi to 57,800 psi. The plates were supplied by a Canadian mill that normally produces sheet and strip "for which rimmed steel is suitable.

Experience has shown that steel of the quality found in these plates more often than not has a particular tendency toward brittle behavior at low temperatures. These particular plates also proved to be abnormally notch sensitive at normal temperatures.

To repair the fractures that occurred last February, the Dominion Bridge Co. cut out about 9 ft of web and bottom flange adjacent to each crack and 1 ft of top flange. This material was replaced by a section with welded bottom flange, by riveting to the existing material. Also, all tension joints were reinforced with riveted splices, designed for the full tensile stress, Dominion Bridge engineers say.

About two weeks before the Jan. 31 collapse, the bridge was examined by a Provincial bridge inspector over a 10-day period. No defects were reported. Roller bearings and finger joints at bridge ends apparently were functioning then, but they might have gotten frozen in after the inspection and caused high temperature stresses. Since the east crossing was not affected, the possibility seems remote. No trouble was spotted in the piers; so it appears hardly likely that the collapse can be blamed on the substructure. Sabotage is a possibility, but why at the coldest part of one of the coldest days of the year?

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War conditions bring new demand for military maps

Need for military maps can never be satisfied in time of war. Stressing that point, Maj. Gen. Lewis A. Pick, chief of engineers, urged the nation's photogrammetrists to exert "every effort of their science to ease the burden of the military." He spoke (Jan. 10) at the recent meeting of the American Society of Photogrammetry in Washington, D. C. (ENR Oct. 12, '48, p. 15).

Pick pointed out that the key to modern map production is photogrammetry—the science of obtaining basic photographic surveys.

"World War II emphasized the importance of maps as military tools," he said. "It is an absolute must today that adequate maps be ready and available for every area in which there is danger of an outbreak of hostilities. This is a tremendous task, and it cannot be accomplished without your help and re-doubled efforts."

In contrast with the lack of military maps at the start of War II, Pick emphasized the efficient manner in which adequate maps were supplied for the Korean crisis.

Armed forces to take heavy proportion of building equipment, AED told

Associate Equipment Distributors hear forces will require up to 70% of production—see opportunities in rebuilding plan

New construction equipment for civilian use is going to be harder to get than many had expected, but new opportunities exist for equipment distributors to aid the national defense program. These possibilities were advanced by representatives of the Army, Navy, and National Production Administration at the 23rd annual meeting of the Associated Equipment Distributors last week in Chicago.

By March 30 the Corps of Engineers procurement offices will have obligated their total budget (to date) of $657 million, to buy certain construction equipment and materials, for the Army, Navy and Air Force, declared Col. R. G. Lovett, assistant chief of engineers for Military Supplies and Procurement.

The Corps of Engineers' procurement program, expected to be increased further this year, cut heavily into some types of construction equipment. While no manufacturer will be asked to deliver his entire output to the armed services, said Col. Lovett, the Corps may take as much as 70% of production. This requirement would greatly exceed estimates made last December that 25% of the construction equipment production would be needed by the armed services. (ENR Dec. 14, 1950, p. 24).

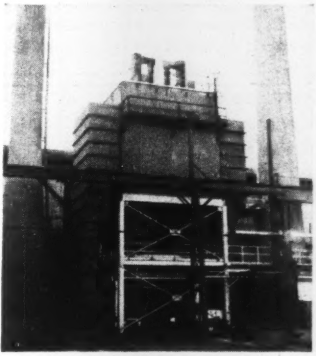
• **Equipment rebuilding**—Col. Lovett pointed out that the expanding "equipment rebuilding" program offers an opportunity to equipment distributors. This program, totaling $3,000,000 during 1949 for the rehabilitation of over-seas equipment neglected since the end of World War II, was doubled last year. It will be expanded to $12,000,000 during the current fiscal year, and should be at least that much next year.

• **Navy Procurement plan**—The Navy's procurement program for construction equipment and material has been streamlined, coördinated and stepped up much faster than during the World War II emergency, declared Capt. Hanson. The total volume of construction equipment being purchased by the Bureau of Yards and Docks undeits budget for the "single service" procurement program—under which one branch of the armed forces secures certain equipment and materials for all branches—was not disclosed. One "horseback" estimate however, placed it in the neighborhood of $250 million.

Capt. Hanson also urged the distributors to take an active part in the Bureau of Yards and Docks' "equipment rehabilitation" program which said he, would be slightly less than that of the Corps of Engineers'. Such equipment, will not be sent overseas, but will be used in the Continental United States.

• **Distributor opportunities** – Distributors' sales obviously will be adversely affected by the armed services purchasing new equipment direct from the manufacturer, declared Ralph Schiesswohl, chief of the Construction Machinery Section, Machinery Division, NPA. However, such business can be gotten from contractors building off-shore bases. In addition, said he, we may expect an increase in the sales of repair parts. As materials for new equipment become harder to get, more emphasis will be placed on keeping the older equipment in good repair.

Defense orders (DO) can not be secured for the purchase of equipment for construction within the Continental United States, even though it is for the NAGCA, the CAA, U. S. Coast Guard, or other national defense programs. There is one exception, however: Defense orders are applicable to the purchase of equipment for construction on Atomic Energy Commission projects providing such equipment will be the property of AEC, concluded Mr. Schiesswohl.



SMOG EATER—First of four precipitators to be installed at Columbia Steel Co.'s Torrance (Calif.) plant. It is said to keep 96% of metallic open-hearth furnace dust from going up 126-ft stack. Each 60-ft high precipitator with cool and electrolytically clean 13,500 cfm of waste gas—collecting 75 to 240 lb of dust per hr. Cost of total installation: $600,000. (U. S. Steel photo)

• **New Committee**—The distributors resolved to appoint an expanded National Affairs Committee of at least 12 men, together with a Washington, D. C. resident-secretary, to represent the industry during the current defense program.

• **New officers**—R. L. Arnold, Arnold Machinery Co., Salt Lake City, was elected president of AED, succeeding C. F. Hallday, Sioux Fall, S. D. H. J. Hush, New York City was elected executive vice president; J. A. Benson, Houston, was reelected vice president; and two new vice presidents were elected: S. J. Oechsle, Philadelphia, and S. A. Stephens, Jr., Montreal, Canada. E. J. Crosby was reelected treasurer. P. D. Hermann is executive secretary.

Should be 37 days

In the article, "Wage-price pegs put brakes on rising construction costs," on page 23, ENR Feb. 1, there appeared the statement: "Materials prices are frozen at the maximum charged during the 17 days preceding the order of Jan. 26."

Actually, the period indicated was for 37 days prior to the order, not 17.

West Coast expressway not feasible, Purcell says

A Los Angeles-San Francisco toll expressway is unfeasible both from engineering and financial viewpoints, California's Director of Public Works C. H. Purcell has informed the state's newly convened legislature.

Purcell submitted a report on the question in compliance with a legislative resolution adopted last April. The study was made jointly by the State Division of Highways and the U. S. Bureau of Public Roads. The highway suggested would be financed by revenue bonds and paid for out of revenues.

From a financial standpoint, the report said, the toll would be equivalent to an exhorbitant tax on gasoline.

Engineeringwise, Purcell said that, "clearly, any route closely approaching a straight line between San Francisco and Los Angeles is impractical." Preliminary studies of possible routes indicate that none is feasible as a toll road for its entirety, as in many sections little or no advantage would be offered over present toll-free routes, the report said.

N.P.A. to defrost M-12 copper freeze

Early modification of the NPA copper order (M-12) will give some relief to builders gripes on this sore subject. The expected amendment may unfreeze inventories in contractors' hands and allow restricted use of copper products—both in housing and in non-residential building.

Copper is so critical that National Production Authority has no choice but to be tough on non-essential uses. By applying its original M-12 order and later amendments to contractors as well as fabricators (ENR Dec. 14, p. 17, and Jan. 4, p. 25), NPA prohibited use on the job after May 1 of copper tubing, sheet, wire and alloy products—such as brass fictures—containing 40% or more of copper by weight. Contractors and home builders howled that the order would stop their jobs in May.

To relieve the crisis, NPA is now in the throes of working out an amendment that will allow essential construction to proceed with copper where no adequate substitute is available and—possibly—where the builder already has copper items in stock for the job.

This is NPA's second tussle—and second defeat—with the construction industry. Three months ago NPA stopped amusement-type construction and threatened to stop other building without warning. The howl from construction people resulted in withdrawal of the threat—NPA virtually promised it wouldn't halt any job on which work had started.

• **Aluminum banned**—Meanwhile, the government's ban on the use of aluminum in the manufacture of more than 200 products will have little effect on the construction industry except in the residential housing field. Even for housing, however, the impact of the ban is softened because substitute materials can be used for most items.

The ban is effective April 1, but aluminum producers who are working on orders on or before March 31 and can complete them by May 31, may do so. The order is directed at fabricators; it contains no ban on use of the items listed for construction, such as appeared in the recent national authority limitation on copper products.

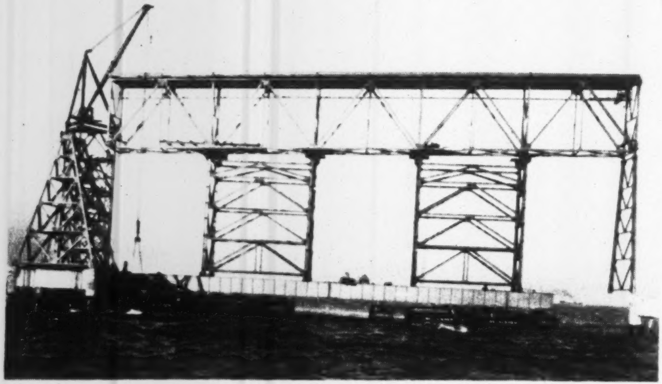
Principal housing items on the banned list include residential roofing, doors—including screen and storm doors; wire fence, storm windows, venetian blinds, molding and trim, towel bars, all kinds of ornamentation; kitchen, medicine and radiator cabinets; light, shelf and wall brackets.

◆

Bomb fear creates boom in New Hampshire realty

The Wolfeboro area of New Hampshire is having a real estate and building boom since that section has been designated as an A-1 refugee area in case Boston and other New England cities are targets for a bombing attack.

People from Boston and other cities are buying up almost every available piece of property and houses are being modernized. Carpenters and construction men are working overtime and scouring the surrounding country for materials. Even with prices the highest on record and still climbing, the real estate men and builders have waiting lists of buyers that are growing longer every day.



UP ON FALSEWORK: the first deck truss of the Chesapeake Bay Bridge is being floated to place on piers alongside. The span is 300 ft long, 40 ft deep and weighs 404 tons. Eighteen more of these will go to make up the four-mile-long bridge.

Minnesota AGC committee seeks subcontractor accord

The Builders Division of the Associated General Contractors of Minnesota appointed a Trade Practices Committee, to serve two main purposes:

(1) Work toward improvement in relations between general contractors and sub-contractors and specialty contractors.

(2) Constitute a medium through which suggestions for improvement of such relations may be advanced by trade groups and individuals.

At the committee's first meeting in mid-January, it was established that in many cases unsatisfactory relationships stemmed from misunderstandings which no one attempted to clarify.

Also, it was established that invitations for bids and furnishing and handling of sub-bids were the area where most problems occur.

H. D. Black, George F. Cook Construction Co., Minneapolis, is chairman of the committee. Other members are: Lloyd Engelsma, Kraus-Anderson Co., Minneapolis; R. A. Shelgren, building contractor, St. Paul; H. D. Lovering, Lovering Construction Co., St. Paul; and P. M. Dougall, Naugle-Leck, Inc., Minneapolis.

◆

Memorial bridge approved by Army for Ohio River

Lt. Col. Clarence Bidgood, United States District Engineer, has received Army approval of a plan for a toll bridge over the Ohio River between Lawrenceburg, Ind., and Kentucky on the opposite shore.

The structure will be built by the Indiana Toll Bridge Commission. It will be called the Indiana-Kentucky Memorial Bridge to honor servicemen of both states who died in World War II. The bridge will cost about $4,200,000 and will be 18 months in building.

The memorial bridge is to divert east-west Indiana traffic away from Cincinnati, Ohio, and to provide a new outlet for highway networks between the two states at the point served by an inadequate ferry.

The new memorial bridge will have an approach seven-eighths of a mile long from the Kentucky side of the river which would come under the Kentucky Highway Commission. The road would connect the bridge with Idlewild, Ky.

A similar bridge has been proposed between Tell City, Ind., and Hawesville, Ky., the Indiana Highway Commission says although plans for the structure have not been completed.

CONSTRUCTION BUSINESS

High construction volume in January

But sharp changes are shown in type and place

Engineering construction activity was 38% higher this January than a year ago for the country as a whole. But in the South it is up 363% while in the Far West it is down 60% below its 1950 volume. And, by type of work, industrial building contracts show a gain of 406% for the month over Jan. 1950, while private mass housing and commercial building show losses of 21% and 22%. Canada turns in a 343% increase in heavy construction over Jan. 1950.

Heavy construction volume in the United States for January is $1,266,892,000, the highest for this month ever reported by Engineering News-Record. Private contracts account for $682,593,000, an increase of 59% over last year. Public works at $584,299,000 are 20% higher than 1950.

The big gains so far this year are in the South and Midwest, due in large measure to power plants to serve atomic energy plants, and to steel mills. The $420.6 million total for the South is made up of $306.8 million in publicly financed construction and $113.8 million in private construction.

The Midwest total is $266.7 million of which $51.3 million is public and $215.5 million is private. West of Mississippi construction is up 68% to $251.8 million.

But Far West volume for January is down 60% to $119.5 million, Middle Atlantic is down 14% to $175.8 million and New England is down very little, under 1%, to $32.4 million.

Canada's spectacular $123 million, is a 343% increase over last year, including a $30-million subway contract, $11.6-million steel mill, and an $18-million refinery.

The dazzling rate of putting industrial buildings under contract rolled up a $378.5-million total for January, 1951, an increase of 406% over last year. Public housing shows the next highest rate of gain, 283% to $83.4 million. Sewerage is up 72% to $29.3 million. Private unclassified contracts are 55% higher at $50.2 million. Public buildings are up 21% to $329.8 million.

Waterworks contracts are down 49% to $12.5 million, earthwork and waterways are down 44% to $14.7 million and highways are down 6% to $59.1 million.

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Costs rise before freeze

Increases of 1.1% and 1.3% during January, 1951 are recorded by the Engineering News-Record Construction and Building Cost Indexes. The February values are 536.74 for the Construction Cost Index and 396.95 for the Building Cost Index, both based on 1913 as 100. These new high values are 10.7% and 11.4% higher respectively than a year ago.

A sharp rise in lumber prices is mainly responsible for the index climb, but cement prices and wage rates are up fractionally and contributed a little. The 20-cities average price for cement is up only 0.6% from January, but is 6.4% higher than last February. Structural steel prices hold at January values but are 7.3% higher than in Feb., 1950.

Lumber prices, after several months of sliding off from their stratospheric highs of 1950, turned up again this month. The ENR 20-cities February average is up 5.2% for fir since the first of January and is up 2.8% for pine in the same period. Since Feb. 1950, fir prices have gone up 27.9% and pine prices, 32.3%.

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Materials output up 22%

The latest overall measure of production of building materials shows an increase of 22% in November, 1950 compared with the year before. The U. S. Department of Commerce Index of Production is 175 based on 1939 = 100 and adjusted for seasonal variation. This is the highest rate reported during 1950.

Building Materials—Index of Production
U. S. Department of Commerce

Material	November 1949	November 1950*
Composite:		
Unadjusted	142.8	173.4
Adj for seasonal variation	144.1	175.0
Lumber	123.0	140.0
Hardwood flooring	149.9	191.3
Brick	124.7	148.9
Cement	177.1	198.5
Wire nails ......(Shipment)	77.0	132.9
Fabricated struct steel (ship)	97.6	128.9
Concrete reinf bars...(Ship)	118.3	144.4
Cast iron radiation...(Ship)	83.5	102.2
Rigd stl conduit & fitgs (Sh)	114.8	222.0
Mech stokers (Sales Cl 1 & 2)	26.8	22.0
Galv range boilers....(Ship)	51.2	55.0
Cl soil pipe & fitgs...(Ship)	183.9	235.8
Softwood plywood	211.8	292.5
Gypsum board ......(Ship)	683.2	794.2
Gypsum lath ....(Ship)	200.5	311.3
Asph prepared roofing (Ship)	182.0	218.2
Asph siding-felts ....(Ship)	186.9	181.1
Warm air furnaces....(Est)	205.2	398.8
Struct clay tile	120.6	119.8
Clay sewer pipe	140.6	146.3

*Subject to revision

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD — JANUARY, 1951

Engineering News-Record *reports continental U.S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation*, $34,000; *other public works*, $60,000; *industrial buildings*, $82,000; *other buildings*, $300,000
Four Weeks—Thousands of Dollars (000 Omitted)

	January, 1951						Total U. S.		%	
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	January 1951	January 1950	Change '50 to '51	Canada Jan. '51
Public Works										
Waterworks	1,580	384	2,038	1,924	4,996	1,586	**12,508**	24,357	− 49	712
Sewerage	1,226	3,532	2,481	12,432	6,969	2,676	**29,316**	16,987	+ 72	750
Bridges	1,692	1,866	14,531	1,020	2,673	3,884	**25,666**	24,719	+ 4	1,850
Earthwork and waterways	79	543	3,866	874	4,184	5,107	**14,653**	26,022	− 44	665
Streets and roads	1,247	16,838	11,909	13,390	8,332	7,430	**59,146**	63,124	− 6	1,142
Public buildings, residential	4,647	15,739	33,786	5,835	14,787	8,632	**83,426**	21,766	+283	4,407
Other public buildings	4,175	32,335	233,494	14,644	23,714	21,447	**329,809**	272,592	+ 21	17,315
Unclassified	979	5,635	4,656	1,134	7,095	10,276	**29,775**	37,857	− 21	40,452
Total public	**15,625**	**76,872**	**306,761**	**51,253**	**72,750**	**61,038**	**584,299**	**487,424**	**+ 20**	**67,293**
Federal government (included in above classifications)	567	20,064	216,117	5,991	18,060	22,796	**283,595**	275,584	+ 3	8,39
Private										
Bridges	....	....	....	....	2,109	....	**2,109**	1,245	+ 69	....
Industrial buildings	9,794	46,627	69,736	138,558	72,598	41,233	**378,546**	74,872	+406	44,006
Com'l. buildings, residential	4,776	42,161	10,036	49,125	56,519	8,181	**170,798**	215,210	− 21	4,262
Other commercial buildings	2,228	10,119	18,160	17,553	28,973	3,951	**80,984**	104,338	− 22	4,910
Unclassified	....	....	15,887	10,260	18,897	5,112	**50,156**	32,386	+ 55	2,515
Total private	**16,798**	**98,907**	**113,819**	**215,496**	**179,096**	**58,477**	**682,593**	**428,051**	**+ 59**	**55,693**
Total Engineering Construction:										
January, 1951—4 weeks	**32,423**	**175,779**	**420,580**	**266,749**	**251,846**	**119,515**	**1,266,892**	....	**+ 38**	**122,986**
December, 1950—4 weeks	26,623	187,078	883,160	141,073	136,216	50,469	**1,424,619**	....	.....	38,118
January, 1950—4 weeks	32,611	204,955	90,779	142,364	149,642	295,124	....	915,475	.....	27,775
% Change '50 to '51	−1	−14	+363	+87	+68	−60	....	....	.....	+343

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 74, went to press.)

Steel Mill—Walsh Construction Co., Davenport, Iowa, B. Perini Construction Co., Boston, Mass., S. J. Groves, Minneapolis, Minn., and Slattery Contracting Co., Long Island City, will construct Fairless Works, one of the world largest steel plants, estimated to cost $300,000,000 at Morrisville, Pa., for the U. S. Steel Co., Pittsburgh, Pa.

Records Center—A $25,000,000 office and printing building is planned in St. Louis, Mo., for the Army Records Center and Army Publications Center, c/o Army Administration Center, St. Louis, Mo.

Power Plant—Dow Chemical Co., Freeport, Tex., awarded contract to Stone & Webster Engineering Corp., Houston, Tex., to build electric power plants and boiler facilities at Freeport and Velesco, Tex. works. Estimated cost is $10,000,000. Dow Company also plans a $26,000,000 rehabilitation program including magnesium rolling and fabricating mills at Madison, Ill.

Air Force Base—Department of the Air Force, Washington, D. C., plans a $37,000,000 air force base adjacent to Boeing plant at Wichita, Kan. Date for construction is not available.

Hospital—Smith Brothers & Wilson, Saskatoon, Sask., has been awarded a $7,000,000 contract by the Provincial Government, Department of Health to build hospital at Saskatoon. Webster & Gilbert, Saskatoon, are architects.

Auto Manufacturing Plant—Swinerton & Walberg, San Leandro, Calif., will construct $7,000,000 auto manufacturing plant at San Leandro, Calif., for the Chrysler Corp., Detroit. Project will be alongside present Dodge plant and can be used for defense work.

Zinc Refinery—Cerro de Pasco Copper Corp., New York, N. Y. plans a $9,000,000 zinc refinery and related facilities near La Oroya, Peru. Equipment, materials and services will be purchased in the United States.

Housing—U. S. Engineers, Galveston, Tex., are taking bids to select sponsors to construct, finance and manage housing at Connally Air Force Base, Waco, Tex. Estimated cost is $4,500,000. Harry L. Spicer, Waco is engineer.

Tunnel—Atlas Construction Co., Ltd., Montreal, Que., has been awarded contract for vehicular tunnel under the Lachine Canal, Montreal, by the Department of Transport, Ottawa, Ont. Cost will be about $4,500,000 to $5,000,000.

Military Housing—Boen-Sealand Construction Co., Seattle, Wash., was low bidder January 30, when bids were opened by the U. S. Engineers, Anchorage, Alaska, for housing at Ladd Field, at $1,359,000 and for housing at Eielson Air Force Base, at $2,977,000. Both projects are in Alaska.

Power Development—H. G. Acres & Co., Engineers, Niagara Falls, Ont., will open bids February 10, for first section of power development on Outardes Falls and Manicouagan Rivers, near Baie Comeau, Que. Work is for the Manicouagan Power Co., Montreal, and total development will cost $14,000,000. First section $2,000,000.

Albeni Falls Dam—Baldwin-Lima-Hamilton Corp., Philadelphia, Pa., was low bidder at $3,009,750 for hydraulic turbines for Albeni Falls Dam, in the Priest River, Idaho, when the U. S. Engineers, Seattle, Wash., opened bids January 31.

Navy Projects—Haddock Engineers, Ltd., Montrevello, Calif., submitted a low bid of $2,476,983 for constructing the Randsburgh Wash Test Range Facilities at the Naval Ordnance Test Station, at Inyoken, Calif., when the Department of the Navy, Inyoken, opened bids January 30. On the same date the Navy Department, 11th Naval District, San Diego, received a low bid for laboratory at San Diego, from M. H. Golden Construction Co., San Diego, at $2,824,000.

Hospital — Consolidated Engineering Co., Baltimore, Md. has received a $2,500,000 contract to build a medical Research Building for Johns Hopkins Hospital, at Baltimore, Md. James R. Edmunds, Jr., Baltimore, is architect.

Bridge—A $2,319,000 low bid was submitted by Lawrence J. Rice Inc., Forest Hills, N. Y., for reconstructing Manhattan and Bronx approaches of the Willis Avenue Bridge, over Harlem River, when the New York City Department of Public Works, opened bids Jan. 17.

COSTS AND VOLUME

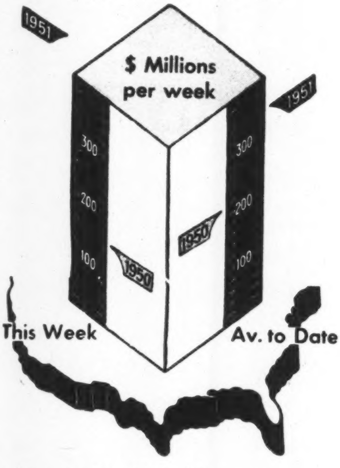
ENR INDEX NUMBERS

Index Base	100	1913	1926	1949
Constr. Cost	Feb.'51	536.74	258.01	112.52
Bldg. Cost	Feb.'51	396.95	214.58	112.84
Volume	Jan. '51	665	270	192

Activity This Week

As reported to ENR
(in millions of dollars)

Note: Figure for 1951—556



Amount of contracts let

	Week of Feb. 8 '51	Cumulative 6 wks 1951	1950	% chge
Federal	$8.8	$305.9	$303.9	+0.6
State & Mun.	73.4	439.4	326.1	+35
Total Public	$82.2	$754.4	$630.0	+18
Total Private	173.5	1,312.3	588.0	+123
U. S. Total	**$555.7**	**$2,057.7**	**$1,218.1**	**+69**

Contracts by type of work

	This Week	Cumulative 6 wks 1951	1950	% chge
Waterworks	$3.9	$19.4	$44.7	−57
Sewerage	5.8	42.7	24.3	+76
Bridges	5.8	39.0	33.4	+17
Highways	16.9	102.2	94.2	+8
Earthwork, Waterways	3.0	23.4	38.1	−39
Buildings:				
Public	22.0	372.2	322.0	+16
Housg., pub.	21.3	111.1	25.5	+336
Housg., priv.	68.9	258.0	329.7	−22
Commercial	13.3	100.6	121.1	−17
Industrial	385.9	872.9	92.3	+846
Unclassified	8.9	96.2	92.7	+4

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	Cumulative 6 wks 1951	1950	% chge
Corporate Securities	$222.6	$319.5	−30
State and Mun.:			
Excl. housing	176.5	168.2	+5
Housing	120.7	130.6	−8
Fed. aid, non-fed. constr.	73.4	0.0	..
Total Non-Federal	$593.2	$618.3	−4
FEDERAL	2,602.5	0.0	..
Total Capital	**$3,195.7**	**$618.3**	**+417**

Shortage or not, there's chlorine for health: NPA

To assure supplies of chlorine for water and sewage treatment, the National Production Authority has issued a new order, M-31. It's expected to help waterworks and sewage plant operators.

A shortage of chlorine has been developing for several years because of its expanding use in the chemical industries. Production now is running at about 6,000 tons a day, but demand is 7,200 to 8,000 tons.

Under the M-31 order both producers and distributors have to fill orders for public health chlorine in amounts equal to 1950 purchases. They don't have to deliver more than 25% of this in any one month.

A chlorine producer doesn't have to give more than 10% of any month's production to DO-rated orders. This means he can legally sell 90% to waterworks and sewage plant operators. A distributor doesn't have to accept rated orders for more than 10% of the chlorine available to him in a given month. Neither a producer nor a distributor is required to accept an order for a quantity smaller than that which he normally deals in.

Waterworks and sewage plant operators must give a certificate to suppliers that the material will be used only for purification of water for human use or for treatment of sewage.

◆

To parallel Pa. turnpike with 30 airports

For military and civilian use, a chain of 30 airports, paralleling the Pennsylvania Turnpike across most of the state is nearing completion. The Pennsylvania Aeronautics Commission is acquiring land for five emergency landing fields to complement commercial airports already in use. All of the strips will be more than 3,000 ft long.

The fields, spaced an average of about 15 miles apart, will provide rapid transportation facilities at points where there might occur breakdowns of trucks carrying vital materials.

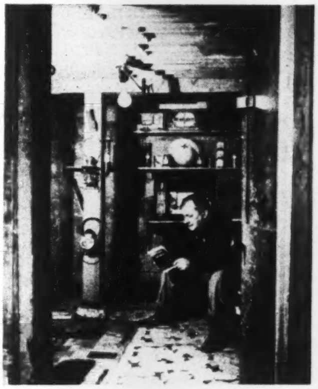
The plan will be of great value to small planes that frequently follow the turnpike because it is the shortest route and an excellent guide to flyers.

◆

Tax meter on trucks

A new highway revenue bill being proposed for the Nebraska legislature calls for a ton-mile tax on trucks to raise an estimated $2,250,000 a year.

Under discussion is the novel idea of putting a mileage meter on the left front wheel of every Nebraska truck subject to the tax.



CITIZEN ON THE READY—Don Bennett, Larkspur, Calif., designed and built this bomb shelter in his home basement. It is cased with concrete building blocks and protected overhead by welded ship's deck steel; has steel door. Shelter contains emergency lamps, first-aid equipment, fire extinguishers, radio, chair and bed and canned food, even for the household pets. (Wide World photo)

Army site approval starts work on filtration plant

A 61-acre site in Lake Michigan for Chicago's $85,000,000 water filtration plant and work on a coffer dam for the project is expected to start in a week. Army approval of the location has come through allowing the project to move forward. It is located in navigable waters controlled by the Corps of Engineers.

Contracts for the coffer dam and a five-mile water tunnel will be the first let, according to W. W. DeBerard, city engineer. Tunnel construction will take four of five years, and work on the dam one year. Construction of the filtration plant and the tunnel can proceed simultaneously.

The submerged site lies 400 feet north of Navy Pier and 500 feet east of Lake Shore drive. It will exceed 1,100 feet from north to south and will be 2,650 ft long on the south, 2,100 on the north.

When the plant is completed it will have a capacity of 950,000,000 gpd and serve that section of Chicago north of 39th St. and some suburbs.

$46 million S. F. Bay bridge likely

A bridge over the northern arm of San Francisco Bay may be under construction in 1952. The California Legislature, when it returns after its February recess, will be asked to approve $750,000 for engineering.

This is not the controversial crossing planned to relieve traffic problems on the present San Francisco-Oakland Bay Bridge (ENR Nov. 24, 1949, p. 28). The new bridge will be known as the Richmond-San Rafael Bridge and will connect Contra Costa County with Marin County where the Sacramento River enters the main bay. The site is approximately where a ferry now serves auto and truck traffic.

Construction of the toll crossing was recommended to the legislature by the California Department of Public Works. C. H. Purcell, director, said the recommendation was made after a report prepared by the Division of San Francisco Bay Toll Crossings found the project feasible from both financial and engineering standpoints.

The report was prepared after a survey directed by Ralph A. Tudor, special engineering consultant and Norman C. Raab, project design engineer.

• **It estimates $46,000,000** for costs of engineering, administration, rights-of-way, insurance and construction. Adding interest during construction of $4,800,000, financing costs of $1,000,000 and setting up a reserve of $2,200,000, a total of $54,000,000 is needed from a revenue bond issue. Coverdale and Colpitts, New York, believe this financing feasible at an interest rate of 2¾ to 3% with about a 20-year payment period, provided that construction costs and general world conditions are not altered.

If appropriated, the $750,000 will constitute a loan repayable from the revenue bond money which can be raised under provisions of the California Toll Bridge Authority Act.

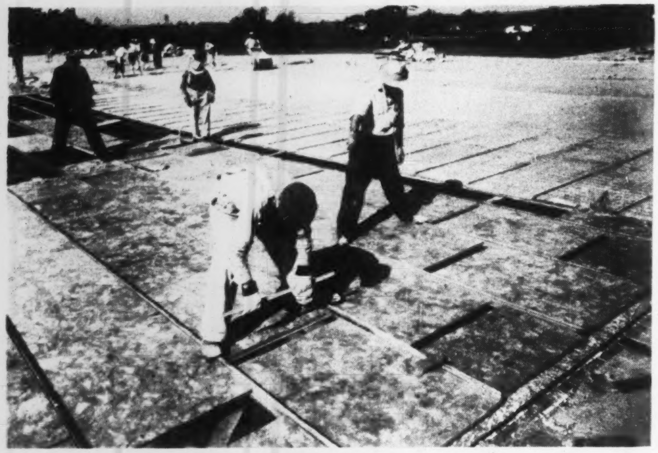
The Cover

Two different applications of light-gage steel are part of the story behind the speed at which Pittsburgh's new 41-story 525 William Penn Place building is being finished.

Stainless steel panels are placed in vertical strips between narrow stone-faced piers extending the full height of the building. These metal panels are 12 ft high and 4 ft 2 in. wide, each being composed of a 7-ft high window and spandrel.

Erection went fast because a full story height could be placed as a unit—a four-man crew carried a panel to where it would be used, lowered it (outside the building) to rest on the window head below, and bolted it to the building frame.

Details on the work will appear in an article in ENR Feb. 22.



FOUR-IN-ONE ROOF—Glass fiber insulating form board, under poured gypsum, was used to cover roof of White Laboratories' new plant in Kenilworth, N. J. Material insulates, resists fire and rot and absorbs interior sounds through underside exposed as ceiling. Architects are A. M. Kinney, Inc., Cincinnati; general contractors, Frank Briscoe Co., Inc., Newark, N. J.; roofing contractors, Keystone Fireproofing Corp., New York, and M. H. Donovan, Hillside, N. J. (Owens-Corning Fiberglas photo)

Canadian defense building C.C.A. topic

Canadian defense construction dominated both public and private discussions at the 33rd annual meeting of the Canadian Construction Association held at Quebec City.

Guest speakers included Premier Duplessis of Quebec and Col. Willard T. Chevalier of the McGraw-Hill Publishing Company.

The meeting was told that the total volume of construction during 1950 was conservatively estimated at over two and one half billion dollars with possible increase over this figure during 1951.

Critical materials situations were carefully reviewed in general and sectional meetings and in one of the public addresses given by F. W. Bull, assistant deputy minister of the federal Dept. of Trade and Commerce. Steel is by far the most critical of construction materials since it is imported from the United States. Operations of the newly constituted steel control were outlined at the Quebec meeting but further shortages are anticipated.

• **Structural steel to increase**—It was stated at the meetings, that within the next two years Canadian steel production will be increased by 25% through mill additions now planned.

Cement production in Canada has doubled since the war years, so that the immediate situation is not serious. Brick production has also increased, and no immediate shortage of lumber is in view even though recent American cut-backs in domestic buildings have not decreased demands upon Canadian supplies such as was anticipated.

R. G. Johnston, general manager of the Association, is on special leave of absence to serve with the government as President of Defense Construction Limited. (ENR, Dec. 28th, p. 16) Instead of presenting his usual annual report, Mr. Johnston described defense construction plans now under way in Canada.

• **The roll of the Tape**—Requests from Canada's defense agencies come to DCL which calls for tenders through its five regional offices. These are the normal regional offices of Central Mortgage and Housing Corporations now providing technical service necessary for DCL.

Contract awards are now being made in a matter of days, rather than weeks. Each bidder is given a list of all bidders on jobs and their prices. Anticipated defense construction during the year 1951 is about $100,000,000.

J. M. Wardle, Director of the Special Projects Division of the federal Department of Resources and Development told the association about progress now being made on the Trans-Canada highway for which all of the Canadian provinces but two now have agreements with the federal government.

School building authority proposed in California

A California Legislature committee has submitted a report recommending the establishment of a state public school building authority to handle state school construction projects.

The committee is urging legislation to give the school authority the power to issue revenue bonds to finance new school construction.

Under the committee's plans, school districts would repay the building funds in the form of rent and in addition would receive some of the money back from the state school fund on an equalization basis as state aid.

The money to finance the program would come from $150,000,000 left in the $250,000,000 bond issue fund voted for school construction in November, 1949.

Under the pay-as-you-go proposal, and with state aid amounting to as much as $100,000,000 a year, the fund would last for the next 15 years.

The committee criticized what it called use of at least one third of the school money for replacing existing classrooms instead of providing for increased growth.

The committee points out that courts have found the rental proposal to pay off bonds is constitutional.

◆

N. Y. C. slum cleanup to cost $24,000,000

New York's Committee on Slum Clearance has announced seven projects. These will be available under Title I of the Federal Housing Act of 1949.

The committee has slated six projects for Manhattan—forty acres between Washington Square South; South village, fourteen and one-half acres; Delancey Street, eleven acres; Corlears Hook, twelve acres; Harlem, twelve acres; North Harlem, twelve acres. The seventh project is in the Williamsburg section of Brooklyn, and comprises forty-five acres.

The seven projects would consist of around 11,000 apartments at rents estimated between $20 and $35 a room a month.

At present there are 12,326 families now living in the slums to be cleared, of whom 3,911 families or 31.7 percent are eligible for low-rent housing.

These tenants, the committee says, would have first priority in the 55,000 apartments to be provided here under the public housing sections of the Federal Housing Act.

Money available for these purposes will amount to $24,000,000, $16,000,000 from the federal government, and $8,000,000 from city funds.

Acheson asks I.J.C. O.K. on Libby Dam

Secretary of State Acheson has sent the International Joint Commission a government request that the U. S.-Canadian joint body approve the construction of Libby Dam and power plant in Montana on the Kootenai River, a tributary of the Columbia. Because the 425-ft dam would "raise the natural level of waters on the other side of the boundary," approval of the project by the IJC is required under the Boundary Waters Treaty of Jan. 11, 1909.

Maj. Gen. Lewis A. Pick, Chief of Engineers, on Dec. 1, 1950, addressed an application for approval of the project to the Secretary of State.

Army Secretary Frank Pace, Jr., approved the application and forwarded it to Acheson.

Libby Dam would create a reservoir 100 miles long, with the upper 42 miles in British Columbia. At full storage, 6,730,000 acre-ft, the reservoir would flood several small communities and farms in Canada, along with some secondary roads. It would necessitate raising parts of the Canadian Pacific's crows nest line and highway No. 3.

Construction will cost the United States about $242 million, in all, at 1950 prices, with $5,500,000 of it to be spent in Canada. A powerhouse, at the toe of the concrete gravity dam, near the left abutment, would have an initial installed capacity of 618,000 kw, in six units rated 103,000 kw each. The ultimate capacity, based on ten such units, would be 1,030,000 kw. Average annual energy output would be 6 billion kwh, of which 2.137 billion would be firm power.

Libby Dam was authorized in the Flood Control Act of 1950, signed by the President May 17 last year. The project has been actively under study since 1944, when the international Columbia River Engineering Board began exhaustive studies of the Columbia and its tributaries for its parent body, the IJC.

◆

FPC issues license for $40 million N.W. project

Federal Power Commission has issued a 50-year license to Washington Water Power Co. for construction and operation of the 200,000-kw Cabinet Gorge Project on the Clark Fork River in Idaho and Montana.

The FPC order authorizing the license provides that construction of the $40 million project is to begin by March 1. Three 50,000-kw units are scheduled to be installed by the end of 1952, with plans calling for a fourth 50,000-kw unit later. A 230-kv transmission line will connect the new plant with the company's system at Spokane.

The new private hydro-electric project will include a reinforced concrete dam creating a reservoir 20 miles long and covering about 2,700 acres.

COMING THROUGH WITH A SMILE—Holing through of the last of eight big tunnels at Garrison Dam in North Dakota on Jan. 13. L. to R.: Mark Foote, project superintendent for tunnel contractors S. A. Healy Co. and Material Service Corp.; C. G. Metcalfe, project superintendent of intake-structure contractors Peter Kiewit Sons' Co. and Morrison-Knudsen Co.; and Everett Knutson, resident engineer for the Corps of Engineers.

Industry-state agreement reached on pollution

Puget Sound industries in western Washington State have reached an agreement with the Washington State Pollution Control Commission on disposal of their industrial wastes by piping a considerable distance into the sound. This method is expected to continue until adequate treatment is found possible.

Vegetable and fruit canneries minimum requirements specify a 20-mesh screen for removal of suspended material from the processing wastes.

For the pulp and paper mills the pollution commission specifies that paper loss from beat and machine operations be kept to 1% of production by savealls, or by partial or complete closing of the white-water system.

Sawmills and veneer mills are not allowed to wash or leach sawdust and slabs into the water.

The industries also agree to collect all waste oils and lubricants in containers for proper disposal whenever feasible.

◆

Mining Co. fights drought in central Arizona

Phelps Dodge Corp. wants to spend $1,500,000 in central Arizona so it can use water 200 mi away.

The mining company has proposed to the Salt River Water Users Assn that it line 15 mi. of central Arizona irrigation canals to save an estimated 10,000 acre ft of seepage a year.

In return, the corporation would get half—5,000 acre feet—for use at its copper mining operation at Morenci in Eastern Arizona.

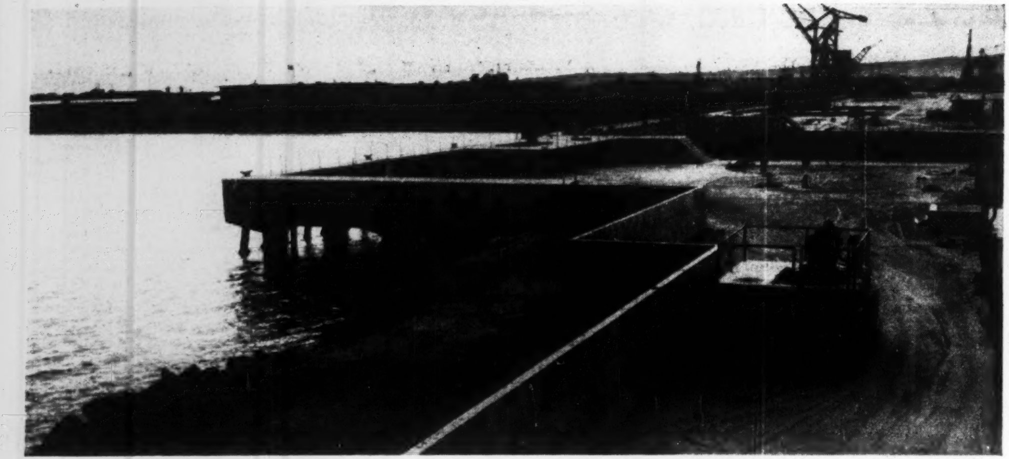
The water would cost Phelps Dodge about $20 an acre foot.

This is exclusive of pumping costs to take 5,000 acre ft of water out of Black River, part of the Salt River primary system, pumping it over a divide into Eagle Creek which flows to Eastern Arizona, and then pumping out of Eagle Creek to the mine.

Phelps Dodge also is negotiating for 5,000 acre ft of water yearly from Show Low Creek in northeastern Arizona. This water would be acquired through a system of water right trades, and transported through a combination pumping and tunnel project.

The company faces a serious water shortage at Morenci through a combination of Arizona drought conditions and increased mining operations.

The Water Users will submit the Phelps Dodge proposal at a shareholders' election. The deal would be for 15 years. After that, all water would go to the Water Users.



CONCRETE WALLS as much as 6¼ ft high were built to keep high water out. The wall in the foreground caps a steel sheetpile cutoff aimed at preventing seepage under the wall. Pump installation will remove storm water from inside cutoff wall. Note drydock in the background.

Walls protect sinking shipyard

• Subsidence of Long Beach Naval Shipyard amounting to 1 ft a year threatened high-tide inundation, making protective walls necessary

Lewis C. Coxe
Comdr., CEC, USN

WHAT CAN BE DONE when sinking ground subjects a $65,000,000 shipyard to the threat of inundation during high water?

That question was faced by officials at the Long Beach, Calif., Naval Shipyard. Subsidence of the Long Beach-Terminal Island area was—(and still is)—progressing at such a rate that—had nothing been done—portions of the yard would now be under water at high tide.

The problem was to devise a protective system that could be built at a reasonable cost. (The alternative would be to abandon the costly installation.)

The solution was a series of walls and other measures that will keep sea water out even when the maximum anticipated subsidence is reached. A $1,000,000 contract, completed in 1950, provides protection where it is needed most. As subsidence continues, an additional $2,800,000 expenditure is anticipated.

• One foot a year—The center of the subsiding area, some 2,500 ft northwest of the yard, has gone down more than 11.5 ft since 1937. Ultimate subsidence expected at this maximum point is about 24 ft (ENR June 16, 1949, p 11). Settlement rate in the shipyard now exceeds 1 ft a year with maximum subsidence to date of 7½ ft. This has placed portions of the shipyard well below high-tide level.

Subsidence is attributed to removal of oil and gas from the high-producing Wilmington oil field underlying the area. Pressure draw-downs in the oil zone, resulting in increased stresses on the granular sand structure, cause compression of the strata. Future subsidence has been estimated by extrapolation of known pressure draw-downs.

• Piers, quays, drydocks protected—Design of the protective system was complicated by the several different types of waterfront structures involved: Piers extending 1,000 ft and more into the water, quays, marginal areas with no docking facilities, and drydocks.

A T-type wall was used on the piers. This provides a 6¼-ft-wide working platform supported by a wall. Height of the wall for the 1,000-ft-long Pier 1 varies from 5¾ ft at the inboard end to 3 ft at the outboard end. Difference in height is due to the variation in rate of subsidence along the length of the pier.

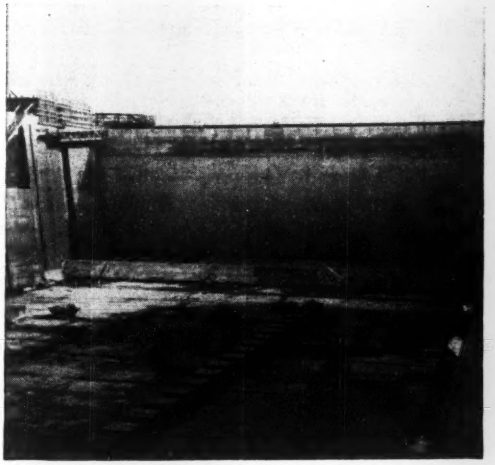
The platform holds the necessary cleats and bollards for handling and securing ships' lines. Utility outlet boxes are mounted on the platform and air, water, and steam pipes are suspended on the underside of the platform.

The pier decks were not waterproofed (except at expansion joints) nor were any measures taken to counteract uplift pressure: The decks are reinforced concrete slabs 26 in. thick. This thickness is required to support the gantry cranes and rail freight service required for ship repair. The weight of the deck structure and wall will more than counteract uplift pressure.

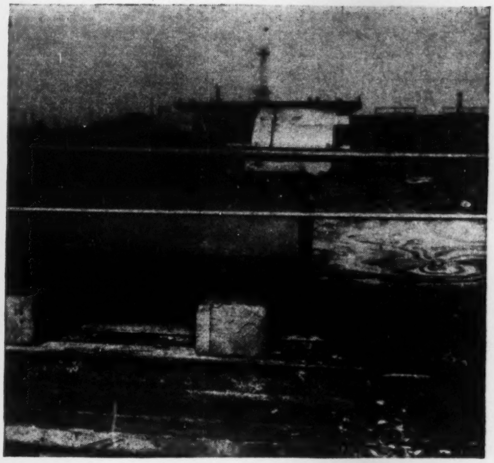
Protective walls on the quays differ from those on the piers in that the platform along the quay wall is a slab and post affair rather than a T-wall.

To combat underground seepage and keep water from under shipyard pavements and buildings, a steel sheetpile cutoff wall is necessary. This will eventually be continuous from one end of the waterfront to the other. The sheetpile wall varies in depth from 70 to 16 ft.

At some locations, underground obstructions prevented the placement of the sheetpile cutoff wall at the dike wall. Instead, it was necessarily located some distance inland where driving the sheetpiling was easier. To counteract uplift pressure between the



DRYDOCK CAISSON SILL was raised 6 ft by pouring a new concrete step inside the drydock. Precast concrete blocks placed by crane and diver raised outer sill.



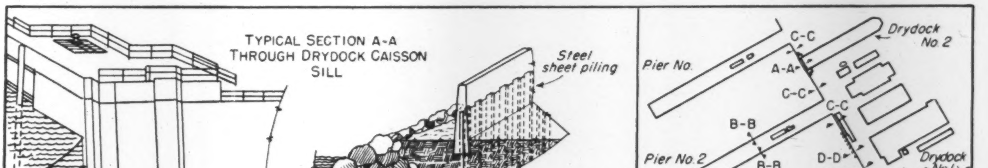
VIEW OF STUB PILE used to extend fender system, with the rotary cutting knife in the background. The knife trimmed stubs to accommodate a steel sleeve connecting the piles.

cutoff wall and the seawall, a 2½-ft-thick concrete slab was laid. This slab ties into both the sea wall and the cutoff wall.

At other locations, where there were no obstructions at the waterfront, the sea wall was built as an extension upward of the cutoff wall.

Between Piers 1 and 2, the protective wall carries no platform. This section of the shipyard waterfront has no quay wall structure intended to accommodate ships. The original hydraulic fill is stabilized by armor rock on about a 1 on 1 slope.

• **Drydock sills raised**—Providing new seats for the concrete-caisson gates that



TYPICAL SECTION A-A THROUGH DRYDOCK CAISSON SILL
Steel sheet piling
SECTION E-E THROUGH MARGINAL WALL
New sill
Pier No.
C-C
Drydock No 2
A-A
C-C
C-C
B-B
Pier No 2
B-B
D-D
C-C
Drydock No 1
B-B
B-B
C-C
A-A
Pier No. 1
B-B
B-B
C-C
E-E
ISOMETRIC AND SECTION LOCATION
Electrical service box
New 12'-0" concrete slab
4" comp. air
6" salt water
6" fresh water
6" steam
SECTION C-C THROUGH QUAY WALL
Future steel sheet piling
SECTION D-D THROUGH MARGINAL WALL
TYPICAL SECTION B-B THROUGH PIER

ISOMETRIC DRAWING of protective measures; involved are pier walls, quay walls, marginal walls, and new drydock caisson sills.

close the entrances to the drydocks is perhaps the most spectacular part of the work.

Operations in the shipyard center around the three drydocks, one 1,100 ft long capable of accommodating aircraft carriers and the other two big enough to handle cruisers. These docks are probably the most expensive and hard-to-replace facilities in the yard and it was largely to keep them in service that the protective work was undertaken.

For the larger dock, the caisson was secured on its original outer seat and a 6-ft-high concrete step was placed in the dry to serve as a new inner seat. Then, with the caisson on the new inner seat, the outer sill was raised by placing 6½-ft-high blocks of precast concrete by crane and diver. Similar methods were employed to raise the caisson seats of the smaller docks 4½ ft.

Result of this sill-raising is that, with the caissons in place, high water is kept out of the docks and the shipyard. Berthing of ships must be accomplished during low tide or else the drydock might overflow. At some future date, it will be necessary to build a continuous wall around each dock.

• **Fender piles extended**—The fender systems also had to be extended for all berthing space. This was done economically when the contractor developed a motor-operated rotary cutting knife. This knife trimmed new pile-capping stubs so that a 3-ft-long steel sleeve could be pressure fitted over the stubs by a hydraulic jack.

With the rotary knife suspended from a crane, piles in place were also trimmed. A few blows of a free-hanging piledriver hammer pressure-fitted the stub and sleeve over the piles in place. This combination resulted in a pile splice as effective as the original pile in resisting side-thrust and shear.

• **Credits**—The first increment of the subsidence protective measures was accomplished under a lump sum contract of $1,204,000 by MacDonald & Kruse, general contractors, Sun Valley, Calif.

Plans and specifications were prepared by the Bureau of Yards & Docks, U. S. Navy. The general scheme of protective measures was worked out by the author with the late Harris Epstin, head of the Bureau of Yards & Docks Waterfront Structure Section, and his assistants, J. R. Ayers and Ralph Stokes. Valuable suggestions were contributed by the Public Works design force of the Long Beach Naval Shipyard. Capt. C. W. Coryell, CEC, USN, was officer-in-charge of construction and the author was resident officer-in-charge.

Shasta gets a cableway—just in case

SHASTA DAM, on the Sacramento River in northern California, will be ready for quick repairs when and if its spillway suffers erosion damage. Permanent downstream cableway and hoisting equipment has been installed for placing a steel cofferdam to dewater the apron for repair or inspection. Steel for the cofferdam also is on hand—1,000 tons of it.

R. S. Calland, acting regional director for the Bureau of Reclamation, says the $350,000 stitch-in-time may save many times that amount if repairs become necessary—but he's hoping it will never be used for other than inspection purposes.

The 1,380-ft cableway has a 3-in. dia main-track cable spanning between steel A-frame towers. A 2½-yd dragline with 90-ft boom and 20-ft jib erected the 130-ft 2-in. head tower and 60-ft 2-in. tail tower. The tail tower is on the river's west bank with its footing 126 ft lower than that of the head tower.

Cable installation was done step-up, beginning with a ½-in. manila pilot rope. When the 3-in. cable finally was in place, it was anchored at both ends in 330-ton concrete blocks—one 200 ft down and back from the head tower, the other 92 ft from the tail tower top.

The hoisting machinery—powered by a 150-hp motor—is housed directly behind the head tower. Regenerative braking is used, the current produced in braking being fed to a series of resistors instead of back into the lines. Load line drums are gear-connected through friction clutches to the inhaul, out-haul drum for synchronizing purposes.

When using regenerative braking only, the maximum lowering speed is 48 fpm; friction brakes also can be used.

The assembled cofferdam is made up of trestle bents and bulkhead panels. Steel parts for the cofferdam are stored about half a mile away. They can be trucked to a point within reach of the cableway for hoisting and hauling across the width of the spillway.

ERECTING THE A-FRAME head tower on Shasta Dam's cableway for spillway dewatering. At right, the hoist house; in background, the spillway.

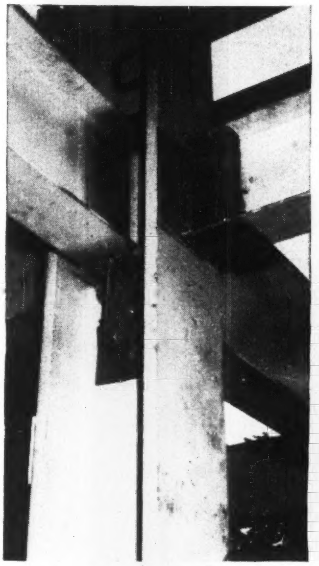


FIG 1. STIFFENED T-SEATS for beam-to-column connections were made up of welded plates, not rolled sections.

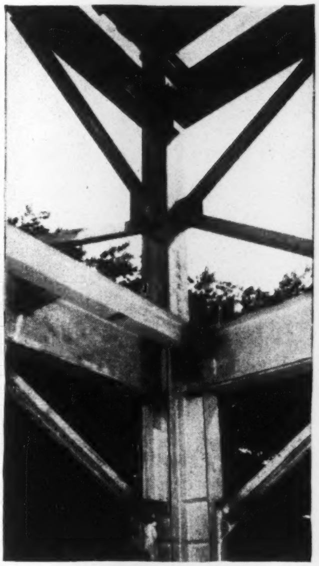


FIG 2. KNEE BRACES were attached at each end with only one erection bolt to gusset plates shop welded to columns.

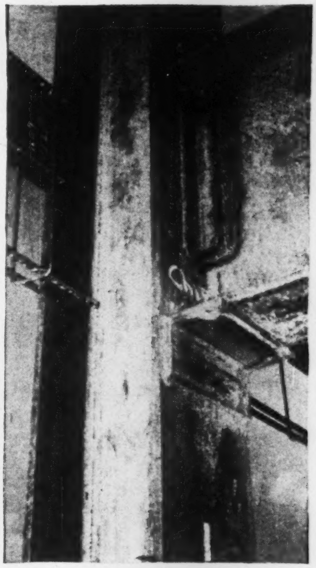


FIG 3. ANGLE formed erection seat where clearances were tight. Framing angles carry beam reaction.

Welding saves steel in three tall buildings

Much money, time and steel were saved in both shop and field by "all-welding" the structural frames of three multistory buildings recently completed in Birmingham, Alabama.

The three structures—incorporating 1,764 tons of structural steel—are the 13-story office building annex for the Alabama Power Co., the 12-story Highland Towers apartment house and the 9-story Dental Clinic and Medical Building. They are the first multistory frames to be completely shop and field welded in the city.

A study of the three structures brings to light a number of details on the use of welding that may prove valuable to other engineers and contractors.

Extensive use was made, where suitable, of standardized welded connections selected from a handbook (Manual of Design for Arc-Welded Steel Structures, by La Motte Grover, Air Reduction, New York). Standardization of connections enabled repetitive use of identical details, thus lowering costs, especially that of shop labor. It also saved designers and detailers many hours of work; facilitated shop control and inspection; and familiarized the welders with details and location of welds.

La Motte Grover

Welding Engineer, Air Reduction
New York, N. Y.

Alfred E. Pearson

Welding Engineer, Ingalls Iron Works Co.
Birmingham, Ala.

Savings in steel by welding generally ranged from about 5% (all in connections) for simple beams and columns, up to 10% or more where a greater amount of fabrication and continuity of members was involved. Structures having trusses or highly fabricated girders afford greater opportunities for cutting both labor and material costs; consequently, in detailing the so called "beam-and-column" jobs, engineers and detailers used excellent judgment in minimizing all-around costs without sacrificing safety or digressing from sound engineering principles.

Erection of the three buildings proceeded rapidly and efficiently. For example, an average of 23½ tons of comparatively light members were erected per working day on the power company building during the 18 working days involved. Field erection was completed within 35 working days after start of shop fabrication. In this connection, it should be noted that the Highland Towers apartment house originally was designed in reinforced concrete, but the design was changed to welded structural steel to save erection time.

• Power company building—The 13-story building is 60 x 69 ft by 164 ft high. Most beam connections are the standardized type, and column splices are butt welded, requiring no connection material other than small clip angles and erection bolts.

Stiffened T-seats for beam-to-column connections (Fig 1) were made of plates, instead of conventional wide-flange rolled sections, resulting in both time-saving and other economic advantages. (This is a good technique to use on jobs where there is a sufficiently large and steady volume of welded construction for which seats are required and some can be made in advance by the fabricator. At this time, when rolled sections are so hard to get, use of plates obtained largely from scrap ends could save rolled sections for use where substitutions could not be made.)

Connections of beams to faces of columns are of the same proportions

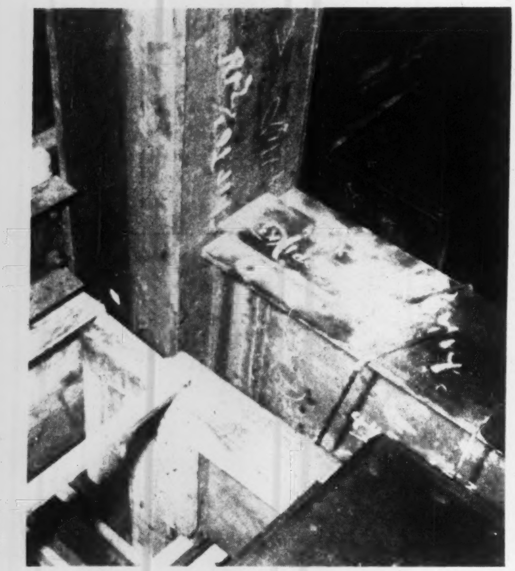


FIG 4. **TOP PLATE** provides partial restraint for some beam-to-column connections. Beam reaction is carried by framing angles.

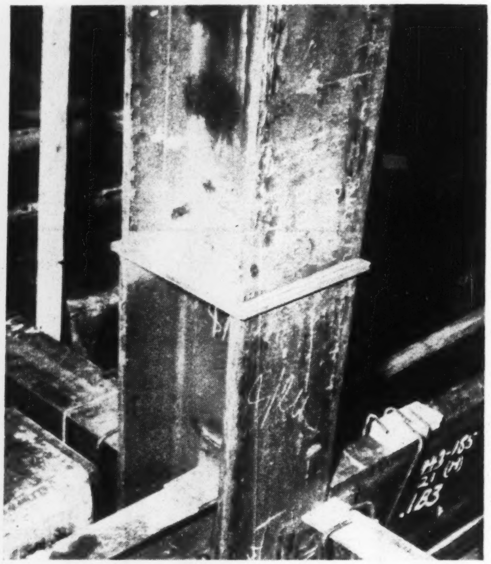


FIG 5. **COLUMN SPLICE** was made by butt welding top column section to plate shop welded to lower section.

as the standardized framing-angle connections. All such angles are shop welded to column faces, and outstanding legs are made 1 in. wider to accommodate erection bolts.

So far as possible, punching or drilling of holes in heavy members was avoided, thus eliminating the cost of moving these heavy members to and from the machines.

Knee braces, composed of two angles, had only one erection bolt at each end connecting to gusset plates that were shop welded to beams and columns (Fig 2). Although standard practice calls for at least two holes in any field connection—one for a drift pin and one for an erection bolt—the one-hole connections for these braces presented no difficulties. Bolts were removed after angles were welded to gussets.

• **Medical building**—The 9-story structure contains some beam-to-column connections that were designed for partial restraint to resist wind forces. Where clearances did not permit use of a stiffened T-seat, a seat angle was provided for erection, the beam reaction being carried by welded framing angles (Fig 3). Partial restraint is achieved with a top plate (shown in Fig 4 but not visible in Fig 3), which is a standardized detail.

Column splices are of the butt-plate type (Fig 5). The plate was shop welded to the top of the lower column section, and only horizontal fillet welds were needed in the field to attach the upper section to the plate. Erection clips at the splice were shop welded to the upper column section and bolted to the plate; consequently, holes had to be punched only in the easily handled clips and butt plates.

Connections of simple beams to columns are standardized angle seats and flexible top-flange angles. Spandrel channels generally were connected to columns by field welding the web to a connection plate that was shop welded to the column flange (Fig 6).

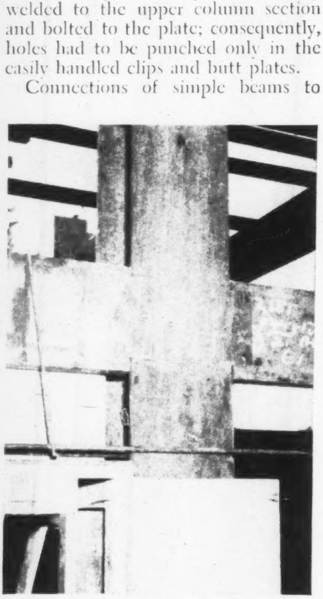


FIG 6. **SPANDRELS** were field welded to connection plates that had been shop welded to column.

• **Apartment house**—Similarly, in the 12-story Highland Towers, some of the simple beam-to-column connections, and all beam-to-beam connections were made with standardized welded framing angles. Other simple beam-to-column connections are of the standardized type in which either a T-seat or an angle seat is employed, together with a flexible connection angle for the top flange.

Spandrel-beam connection details are patterned after typical details illustrated in the handbook. Where a spandrel beam was rigidly welded directly to a column flange, erection seats with only one hole for erection bolting were used without difficulty (Fig 7).

For rigid beam-to-column connections of wind bents, butt welds attach beam flanges to column faces (Fig 8). Fillet-welded framing-angle connections carry beam reactions. Butt welds in these connections were provided with $\frac{3}{4}$ x 1 in. backup strips, and two holes were coped out of both ends of every beam—one hole directly under the top flange, to accommodate a backup strip, and one hole directly above the bottom flange—to permit

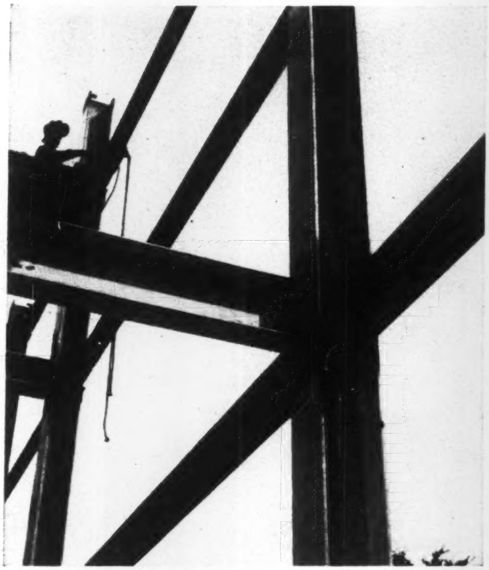


FIG 7. ERECTION SEAT with only one bolt for holding beams proved adequate for spandrels rigidly welded to column.

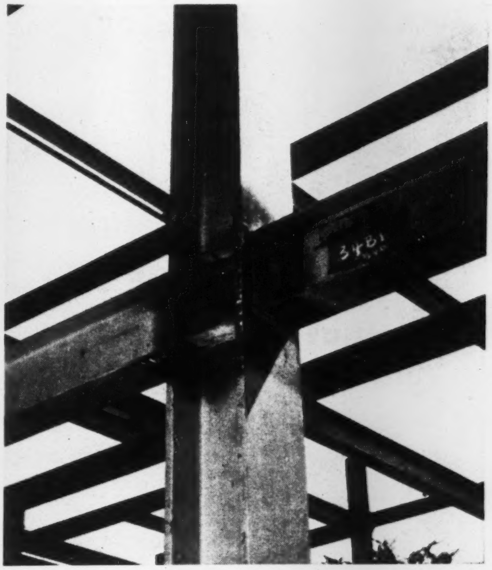


FIG 8. RIGID CONNECTIONS of wind bents were made by butt welding beam flanges to column.

the electrode to be carried through when the butt weld was made. Thus welders did not have to stop and start butt welds at the same location adjacent to the web—an operation that would have made production of a sound weld difficult.

The quantity of shop welding in these three structures varied widely, depending on the amount of fabrication involved. For example, two design factors were responsible for a relatively larger amount of shop welding for the Highland Towers apartment. (1) Spandrel beams are highly fabricated; each beam consists of a flat plate continuously welded to the top flange of a channel (Fig 9). (2) The structure is essentially of continuous construction, thus requiring a greater amount of welding for connections.

• **More welding going on**—These Birmingham buildings represent a continuation of a nationwide trend toward welding, despite the opposition of some engineers and fabricators (ENR Dec. 15, 1949, p 23). There has been a pronounced increase in use of welding in various sections of the country, but only recently has it been applied generally to the multistory structures.

Real progress in welding frequently centers around some structural steel fabricator who believes in the distinct advantages of the art of welding, has set up a suitable organization in his engineering, shop and other departments and has built up a background of experience in this field. He is thus able to carry out welding work in an efficient manner and with good control.

Birmingham has a number of enterprising structural engineers and architects who are familiar with the principles of design for structural welding. After the city's building code was revised to permit welded construction without restriction, they needed only encouragement and cooperation from a fabricator to obtain the economic and other distinct advantages of welded structures. They found their answer in The Ingalls Iron Works Co.

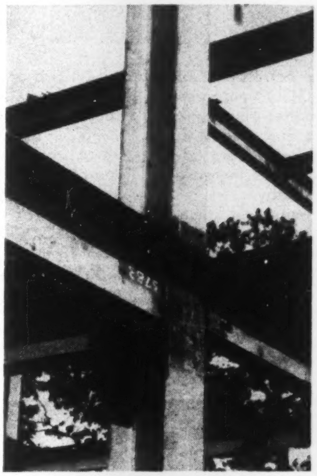


FIG 9. CHANNEL with plate welded to top flange forms the spandrel for the apartment house.

Ingalls' two Birmingham plants had extensive experience with welded fabrication prior to the last war and supplied thousands of tons of welded assemblies for erection at its shipyards in Pascagoula, Miss. and Decatur, Ala. during the war. After V-J day, the company gained additional experience with structural welding for buildings. Consequently, it was in a good position to tackle these three projects on an all-welded shop and field basis. The steel was erected by its subsidiary, The Steel Construction Co.

Jack B. Smith was the architect, Strickland & Associates were the structural engineers and J. A. Jones Construction Co. was the general contractor for the power company building. Long & Gatling were the architects, Strickland & Associates the structural engineers, and Foster Creighton the general contractors for the apartment house. And for the medical building, Warren, Knight & Davis were the architects, Carl Wilmore was the engineer and Daniel Construction Co. the general contractor.

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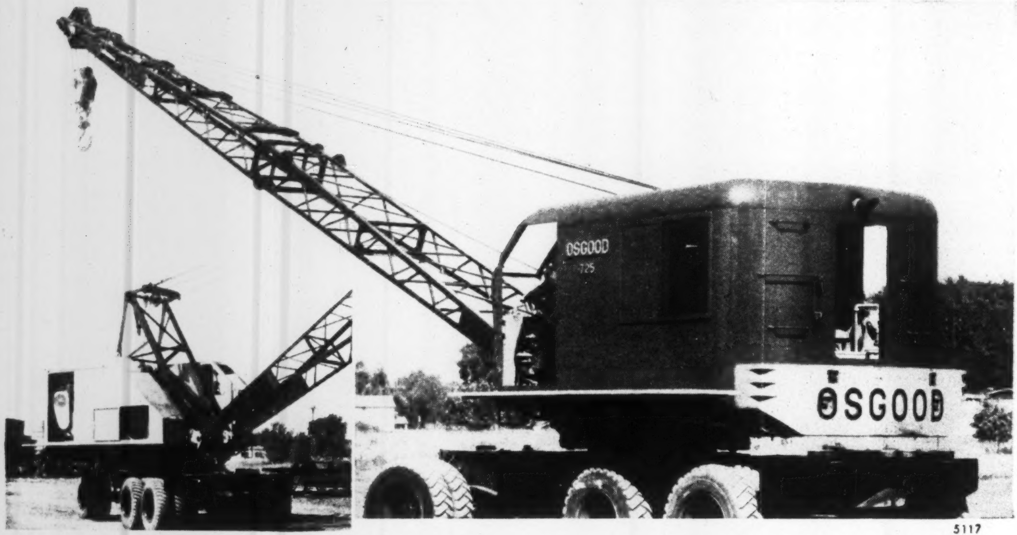

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CAPSULE STARTS DOWN—The electronic plumb bob's two elements are the control box (on top of a pile at left) and the capsule (entering pile casing at right). The pile about to be tested penetrates 77 ft.

Electronic plumb bob demonstrated; yields data on pile's out-of-plumb

WHERE DO TUBULAR PILES GO?

The answer at last may be determined quite closely, thanks to an ingenious device called the electronic plumb-bob.

In a recent pile-testing demonstration at Ford Motor Company's sprawling River Rouge plant, engineers saw the plumb-bob in action. (ENR Sept. 14, 1950, p. 122). And they were able to watch the development of graphic data on the underground course followed by hollow piling.

What this information means is indicated by statements of W. H. D. Hinchman, the plumb-bob's developer. Through knowledge of the point where piles bear, increased design loads become possible, Hinchman says. Further, the plumb-bob should lessen rejection of out-of-plumb piles —often discarded when an electric light lowered into them passes from view, due to bends caused by horizontal displacement of the piling. Analysis of precise data may determine that such curved pilings are still usable, due to compensating errors in adjacent piles.

The demonstration took place when 22 sectional-steel casings for 108 concrete-filled pipe piles had been driven for support of seven 400-ton stamping presses. Average depth below cutoff was 77 ft. The hollow casings are to be filled with concrete, and a thick concrete mat will be poured atop the piles as a further foundation support, and as a means of further distributing the load of the heavy presses.

The soft blue clay under the area presented few difficulties, but because of the short headroom, piles had to be driven in seven-ft sections, making a total of 10 welds per pile—four hours' driving time per pile.

At the time, ordinary testing methods had shown two piles to be far enough off vertical for rejection: An electric light, lowered into the casings, had passed from view of the engineers.

Hinchman tested the two with the electronic plumb-bob, (see record of one) also running a test on a near-perfect control pile. The bob spotted every bend in each casing yielding data for computation of horizontal displacement to fractions of inches.

• **The plumb bob** — Hinchman's plumb-bob consists essentially of two elements. One is a metal capsule 4 ft long and 5 in. dia. The other is a recorder box (whose insides resemble a radio set) that records on a meter any deviation from vertical that the capsule makes during its trip downward into the casing. A small plumb bob in the capsule is linked electrically with the meter. Vertical angles that the bob makes with respect to the capsule's axis are transmitted to the meter. In operation, readings taken at 5- or 10-ft intervals provide data for a graph of the piling's course underground.

Engineers witnessing Hinchman's demonstration were impressed by the possibilities in the use of the electronic device. For an experienced foundation engineer, however, the old method of using a light to tell deviation is still as reliable as it ever was. At the Ford job, for instance, deviation appraisals made by I. W. Henderson of the Raymond Concrete Pile Co. approximated the readings indicated by the electronic device.

The demonstration within Ford's Dearborn Stamping plant building was arranged by Mr. Hinchman, president of Hinchman Corp., with the Ford plant engineering office. Also present were Detroit Edison engineers and Mr. Henderson, general district superintendent of the Raymond Concrete Pile Co., contractors for the pile-driving job.

Pile Survey Chart

Depth ft	Inclination from vert	Total displacement
0'	0°	0"
10	1°	2.1"
22	1°	4.6"
30	1°	6.28"
40	1½°	9.42"
50	1½°	12.56"
60	1°	14.66"
70	2°	18.85"
77	2½°	22.6"

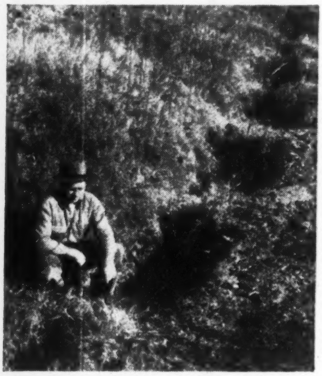
GRAPHIC RECORD—Simplified table shows key data provided by electronic plumb bob. Arrow in circle shows general out-of-plumb orientation with respect to North. Figures in last column are obtained by multiplying the interval of depth by the tangent of the angle of inclination.

1 Gullies caused by careless grazing eat heart out of valuable pastures. (Photos by U. S. Forest Service)

2 Sand washed off denuded and gulley-scarred watersheds chokes downstream channels; runoff floods fertile bottomlands.

3 Erosion of watershed gullies can be stopped by planting loblolly pine. These are seven years old.

4 Earth dams across wide gullies make sediment basins. This one caught a lot of sediment.



5 Road banks fixed with bermuda sod and grass check dams in ditches kept soil from being carried away in runoff.

Good land-use practices cut turbidity in river water

Quality of water has steadily improved in the Chattahoochee River above the water-supply intake of the city of Atlanta. Twenty-year records of the water department indicate that average annual turbidity has declined steadily from a high of 400 ppm in 1934 to 125 ppm in 1949.

This steady improvement is indicative of better land-use practice on both farm and forest land, according to F. A. Albert, assistant regional forester, U. S. Forest Service, Atlanta, Ga. It also suggests, he adds, that there is less surface flow and more infiltration into the ground on the watershed above the river intake.

If these more responsible practices continue, Albert believes that soil structure in the upper layers (A horizon) will improve, surface runoff will be reduced still more, and high and lows of the river's crests may not be as excessive as they have been in the past.

Doubt is thrown, however, on this latter conclusion by opinions of local officials of the U. S. Geological Survey, Albert admits. They believe that there has been no significant change in fluctuations of the river's crest Their reasons: Adjustment in land-use practices have been on too small a scale and in effect too short a time

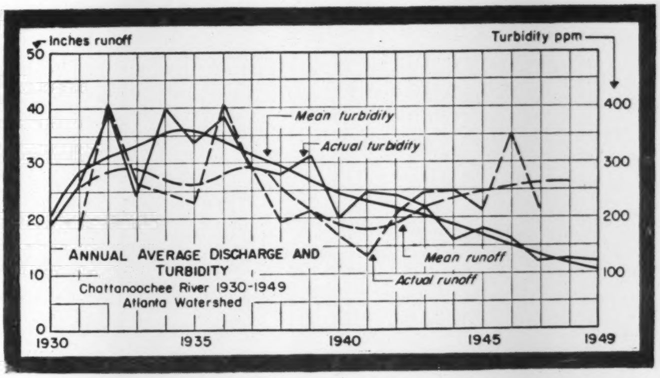
Pointing to the fluctuations, the officials suggest that future studies may indicate improvement.

These findings are detailed in Albert's preliminary report, "Chattahoochee River Turbidity in Relation to Land-Use Practices." Data for the analysis was furnished by the U. S. Geological Survey, Atlanta Water Works, Soil Conservation Service, U. S. Forest Service, and Agricultural Extension Service. Copies may be obtained from the Regional Forester, U. S. Forest Service, 50 Seventh St., N. E., Atlanta 5, Ga.

• Turbidity and Runoff—Highest turbidities in river water would normally be expected in periods when storms are most numerous and of longer duration.

The months of December through May had greatest number of days on which discharge exceeded what are

6 Erosion in gully is stopped by Kudzu cover, a grass that resists washing out.



7 Runoff fluctuated normally in accordance with rainfall. But turbidity declined steadily. Conservation-directed land-use practices are responsible for improved water quality.

considered critical flows for this study (table). But heaviest turbidity occurs regularly in June, July and August. This is true even though average runoff during these months was light in comparison with the other seasons of the year.

Summer showers are intense and have full erosive effect on cultivated fields, Albert explains. Erosion can be extremely serious although the stream hydrograph does not reveal accelerated runoff. He points out that the hydrograph may even be misleading because a good deal of water goes to vegetation during the growing season. This loss is considered negligible in winter.

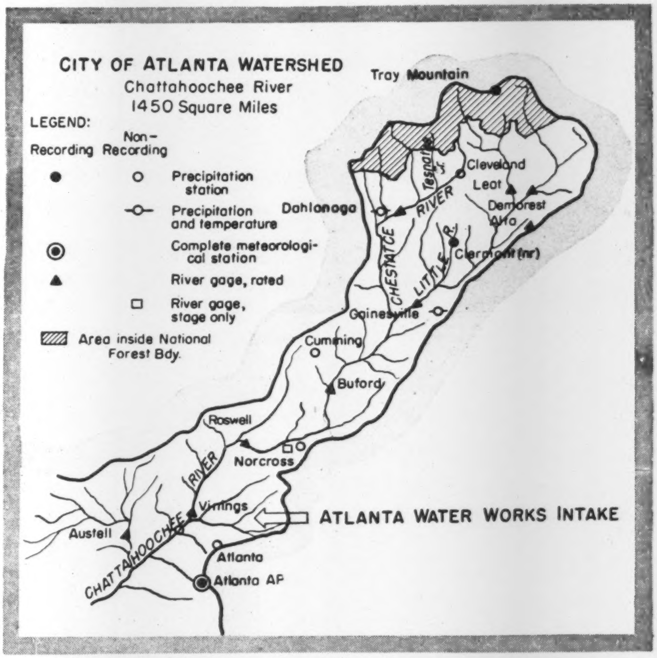
Reduction of turbidity over the 20-yr period for the months of April to September is very apparent. Because of improved land management during the active-crop season, river turbidity has dropped from highs of 800-1,200 ppm to lows of 80-200 ppm in 1949.

River turbidity during the fall and winter is very low. It ranges between 200 and 50 ppm, the latter value being record in 1949. This indicates that land-use changes had little effect on changes in turbidity during the dormant season.

Runoff during these seasons varies widely. In October and November it's low; in December it's medium; and in January and February it's very high under heavy storms.

Part of low stream turbidity, during wintertime heavy runoff, is due to the fact that frozen ground greatly reduces the amount of erosion, Albert states.

Turbidity trends on a month-by-month basis for 1931-49 are summarized by twelve graphs in the report. Fig 9 for April is typical. Storm record is in number of days stream discharge exceeded a flow of 2,500 sec-ft as well as 10,000 sec-ft at Vinings, Ga.


CITY OF ATLANTA WATERSHED
Chattahoochee River
1450 Square Miles
LEGEND:
Recording
Non-Recording
● ○ Precipitation station
-○- Precipitation and temperature
◉ Complete meteorological station
▲ River gage, rated
□ River gage, stage only
▨ Area inside National Forest Bdy.
Tray Mountain
Tesnatee
Cleveland
Leaf
Demorest
Alto
Dahlonaga
CHESTATCE RIVER
LITTLE R.
Clermont (nr)
Gainesville
Cumming
Buford
Roswell
Norcross
RIVER
CHATTAHOOCHEE
Vinings
ATLANTA WATER WORKS INTAKE
Austell
Atlanta
Atlanta AP

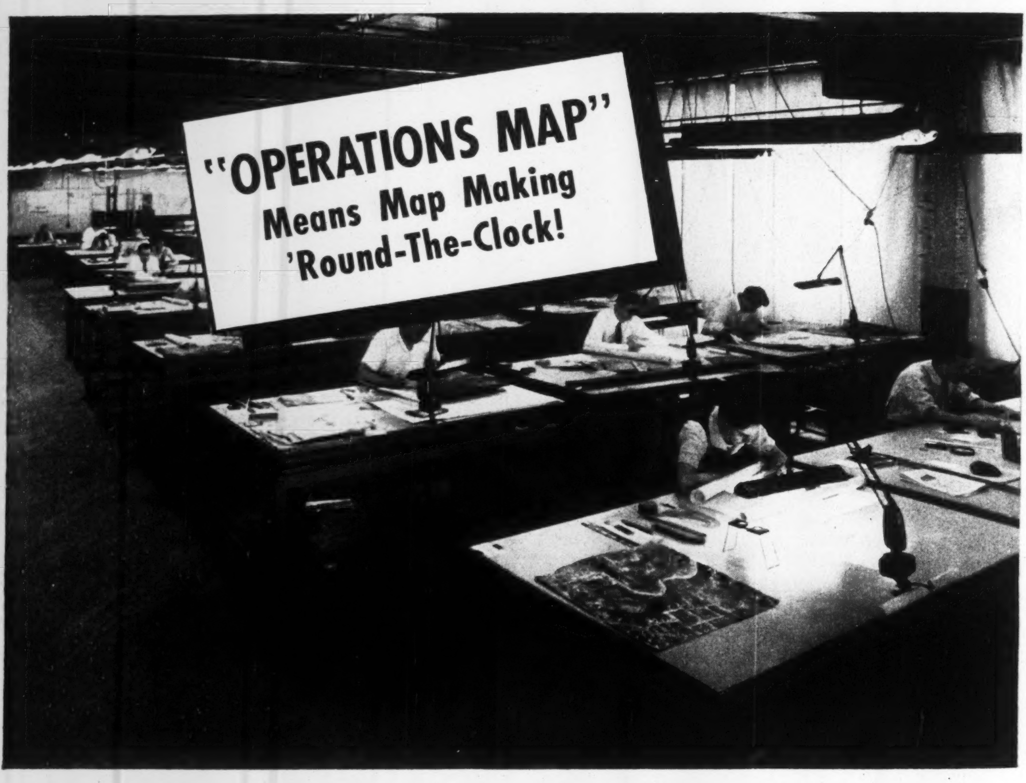
8 The watershed for Atlanta's supply extends from Tray Mountain in north Georgia to Vinings. It's 85 miles long, 17 miles wide; contains about 928,000 acres (1,450 sq. mi).

The Chattahoochee at Vinings has an ordinary runoff of between 1,000 and 2,000 sec-ft. The two lowest discharges—412 and 422 sec-ft—occured in 1931 and 1941. The highest discharge of the 20-yr period was in 1946—42,000 sec-ft.

• **Responsible land use**—Changes in land use—checked over a 30-yr interval—can be correlated with marked improvement in river quality. Among these are:

1. Increase in the Chattahoochee National Forest. Acreage under federal control increased from 1,200 in 1920 to 82,300 in 1949. Most of it —95%—was added after 1930.

The Forest was placed under fire protection. And due to its scattered ownership, some protection was ex-



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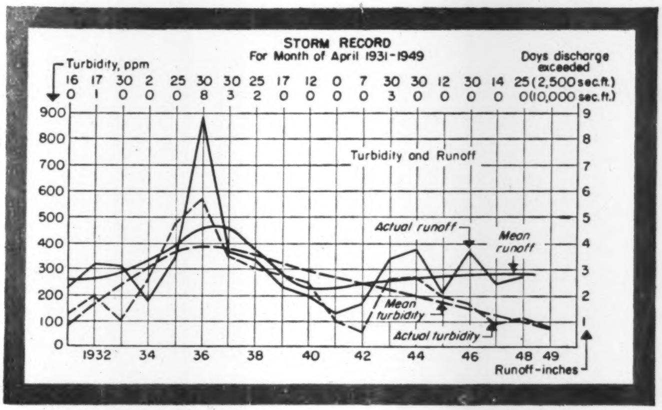


9 Runoff-turbidity graph for month of April over an 18-yr period. Conservative land management (during growing and active-crop season) resulted in decreased turbidity after 1943 even though runoff stayed up in the same general range.

tended to more than just the federal lands. Protected land is estimated at about 150,000 acres on the watershed.

2. Road-Bank Stabilization – Stabilization became standard practice on Forest Service road jobs. This reduced siltation in the streams.

Logging roads and skid trails in timber-sale areas are now being improved in national forests. This is still a source of damage to water quality in streams.

3. Reforestration–Tree planting on worn-out eroded farms has contributed substantially to better water quality.

4. Soil conservation–The Soil Conservation Service Program started in 1935. Since then, about 60,000 acres of permanent improved pasture have been established; 4,000 miles of improved terraces have been built; 52,000 acres are annually planted to cover crops; and about 35,000 acres of new forest have been planted. Good rotation practices for crops, in addition, are in effect on nearly 60,000 acres.

These practices were put into effect on lands of farmers actively cooperating with the Program. At least 25% additional land is receiving better treatment as a result of the educational work of the SCS and Agricultural Extension Service, Albert claims.

5. Land management–Better management is in effect on more than 300,000 acres of crop and forest land. And at least another 150,000 acres is getting more responsible care. Together these figures show that half the land on the watershed is receiving improved treatment. Albert states "this . . . resulted in improved quality of water in the river."

It must be kept in mind, he emphasizes, that most of the tree planting and permanent pasture work was carried out on the steepest land. In the past these hilly areas have contributed most to the silt load of streams. Croplands on steep-sloping lands have decreased about 48% from 1925 to 1945.

• **Watershed management and cost**—A typical municipal water-supply reservoir on a natural site costs about $500 per million-gallons capacity, Alberts reports. This amounts to $163 per acre-ft of water.

"Such an investment is sound only if the reservoir is protected from siltation, and full advantage is taken of the storage capacity and slow discharge of the watershed itself," he declares. "Watershed capacity and water yield for soils have been well demonstrated at both the Coweeta Hydrologic Laboratory of the U. S. Forest Service near Franklin, N. C. and at the Bent Creek Experimental Forest near Asheville, N. C."

Cost of good woodland management is wiped out by profit at an early date, according to Albert. Average cost in 1949, for example, of protecting and managing six mountain forests is Region 8 (southeast U. S.) was $0.35 an acre. But average receipts from products sold were $0.82 an acre, a return of $0.47 an acre in excess of operating expenses.

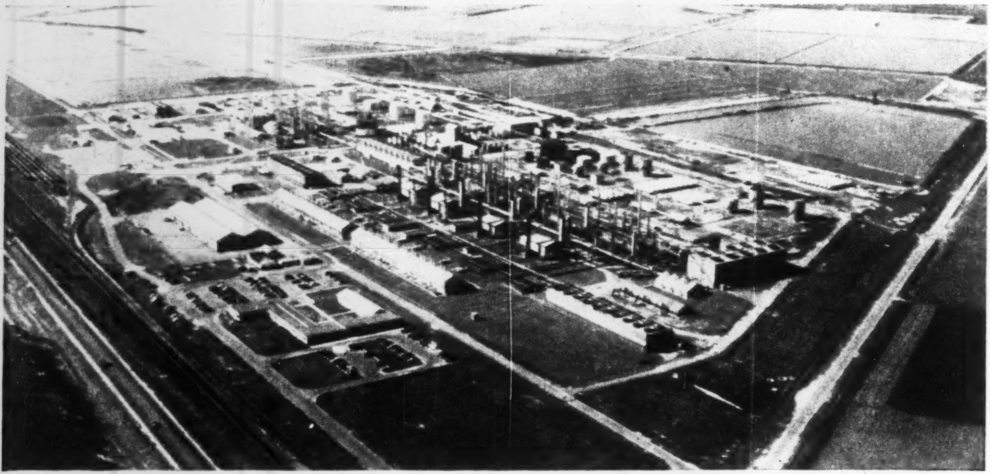
RECOMMENDATIONS FOR GOOD WATERSHED MANAGEMENT CHATTAHOOCHEE RIVER WATERSHED, GA.

1. Consolidate national-forest holdings by purchase, giving special attention to important watershed lands and steep-mountain farms.
2. Continue educational efforts to improve logging practice. This should be aimed at reducing soil losses on skid trails and logging roads.
3. Extend state fire protection to all woodlands on the watershed.
4. Extend management service to small woodland owners. Its purpose: Development of forest values and thereby reduce the fire hazard and increase farm income.
5. Increase tree planting on lands not suited for agriculture and permanent pasture.
6. Intensify farm programs to obtain 100% coverage in such practices as improved pastures, contours, strip farming, cover crops, green manure and crop rotation.
7. Extend roadside stabilization to state and county roads.
8. Turbidity in a stream merely indicates that—instead of water infiltrating into the ground—it is passing over the surface and taking soil with it. This is expensive and wasteful. Downstream users must have the best water that a watershed can produce. Good watershed management is the cheapest way to get it.

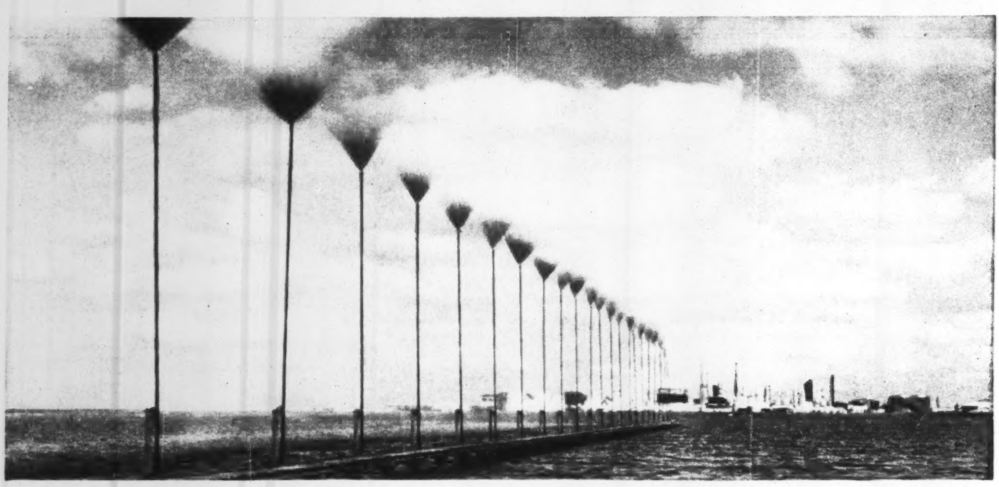
TABLE I—STORM RECORD AS INDICATED BY STREAM DISCHARGE

(Months of Heavy Discharge on 18-yr average)

Month	Average Turbidity (ppm)	Average Runoff (In.)	Number of Days Stream Runoff (2500 sec ft)	(10,000 sec ft)
December	128	2.17	6.2	1.3
January	171	3.08	13.1	1.6
February	198	2.97	16.0	1.8
March	197	3.01	20.6	1.6
April	224	3.06	19.5	1.0
May	220	2.13	12.0	0.0
June	381	1.59	4.8	0.0
July	524	1.56	4.7	0.5
August	430	1.54	4.4	0.4
September	224	1.01	1.3	0.0
October	127	1.14	2.2	0.2
November	96	1.15	2.5	0.2



PROCESS-WASTE WATERS are evaporated in vast ponds at the Celanese Corporation of America's Bishop, Texas plant.



EVAPORATION is speeded by sprays at the top of long pipes. Waste waters are pumped to spray heads from the ponds.

Complex water-pollution problems solved by applied research

INDEPENDENT RESEARCH pays off when you must dispose of tricky industrial wastes without polluting streams. At least that's the case at Bishop, Texas, where the Southwest Research Institute stands guard for the Celanese Corporation of America.

• Problem and solution—This plant produces a variety of synthetic organic chemicals from petroleum hydrocarbons by direct oxidation. Some of its products are: Acetic acid, acetone, acetaldehyde, formaldehyde, paraformaldehyde, methanol, propanol, butanols, and propylene glycol. All of these chemicals are sold on the open market. Two of them are converted to cellulose acetate rayon and plastics by other Celanese plants.

Two types of waste water are discharged: One comes from cooling towers and boiler plants; the other from chemical processes.

Cooling water and boiler blow-down go directly to a public stream. They are harmless to fish, fowl and vegetation. Flow is 200 to 800 gpm, depending on source of makeup water.

Process waste water—heavily contaminated with organic chemicals—can't be discharged directly into public waters. With a flow of 400 to

600 gpm, it's disposed of by solar evaporation. This is done in carefully built ponds that cover 375 acres.

• **Checking up**—Southwest has been making regular and special studies of Celanese's two waste-water problems for more than two years. Regular duties include: Taking grab samples of process effluents at 8-day intervals; and collecting composites from continuous automatic samplers on blowdown pipes and on the creek below the plant. Analyses of the waste and water samples show whether or not the plant's waste is being handled safely. Monthly reports are submitted to Texas' health department and Game, Fish and Oyster commission. Kleberg county officials are contacted regularly to keep them advised of the receiving water's general condition and progress of treatment research.

This program—by a non-partisan agency of recognized integrity—serves as a guarantee that all effluents discharged from the plant to public waters are harmless.

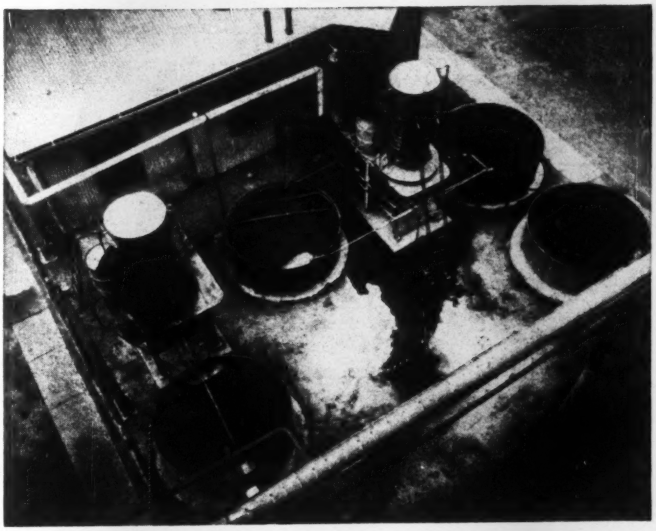
To maintain a firm basis for reporting to public agencies, Southwest has developed modifications and improvements in numerous analytical methods. Some of the test improvements are for reliable determination of formaldehyde, free chlorine, dissolved oxygen, and biochemical oxygen demand (BOD) in the presence of interfering substances, principally sodium dichromate.

• **Waste-water toxicity**—Animal and fish life are being tested for toxic effects of water-treating compounds discharged from the plant with waste waters. As a result of this program, Southwest has been able to assure all interested parties that no hazards exist.

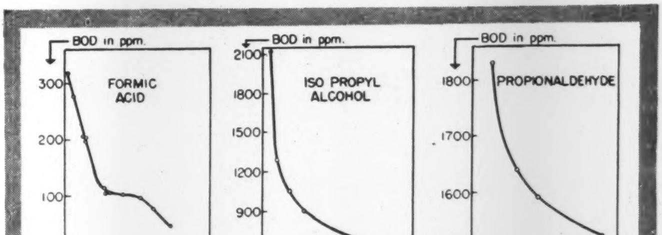
Slime and corrosion inhibitors were also thoroughly studied for toxicity. Slimes in the Celanese cooling water were bacterial and quite resistant to destruction. Practically all of the inhibitors studied were shown to be toxic to fish in concentrations required for control of slime.

Chlorine, however, turned out to be an economical and satisfactory slime controller: Its residual in the blowdown water (about 2 ppm) disappears in the mile of ditch between the plant and creek.

Sodium dichromate is employed by Celanese as a corrosion inhibitor. It was found to be best for their particular conditions after a thorough investigation of chromium-type inhibitors. A series of ten-day assays showed that minimum amount of sodium dichromate toxic to catfish (70 ppm) and to goldfish and blue gills (over 200 ppm) was substantially larger than concentration of com-



TRICKLING-FILTER PILOT PLANT. A single-stage unit discharging to one lagoon is at left. Two-stage plant with three lagoons is at right.



Variation of the BOD per 1,000 ppm of Compound with Concentration in ppm of Compound Incubated

BIOCHEMICAL OXYGEN DEMAND varies with the concentration of various organic chemicals.

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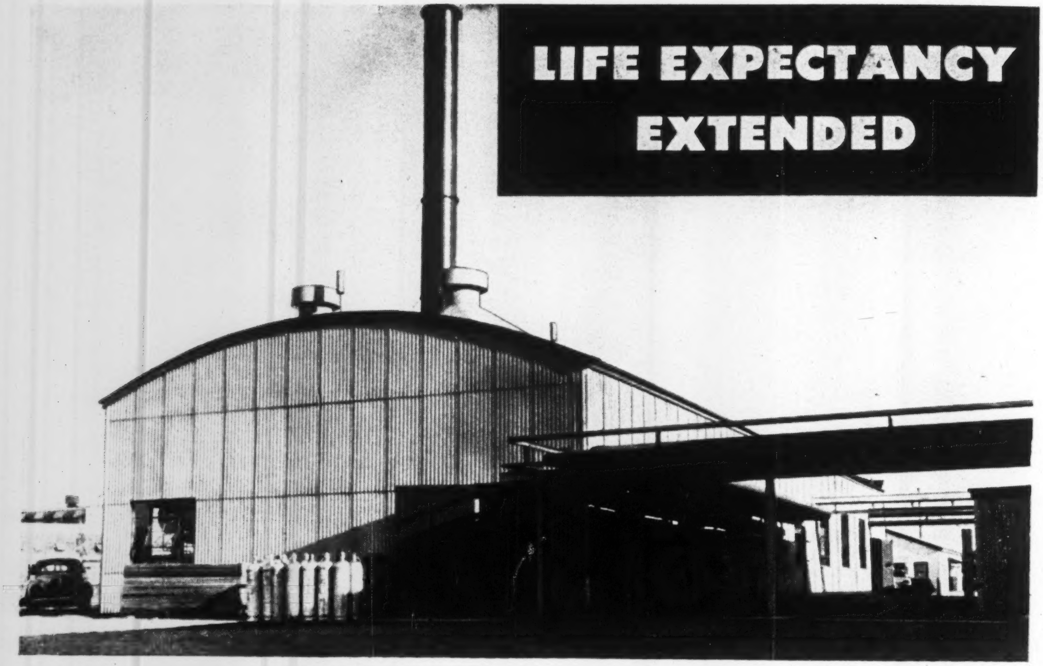

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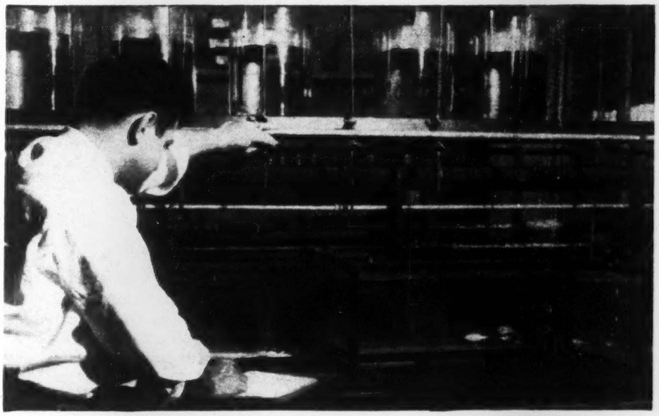
pounds (about 30 ppm) discharged from the plant.

• Disposing of processing wastes—Solar-evaporation facilities are employed for disposing of synthetic organic-chemical wastes. No other method has proved to be as economical for the Bishop plant. Studies of various treatments for rendering these wastes suitable for discharge to public water are continuing, Southwest and Celanese being particularly interested in biological treatment.

Reduction of formaldehyde, one of the principal constituents of process water, and reduction of chemical oxygen demand (COD) were selected as measures of efficiency of waste treatment. Both determinations can be made in a relatively short time; both serve as excellent control tests.

The final effluent, however, must be judged on the basis of its BOD as well as its toxicity to fish. Although determining treated-waste BOD was as simple as finding that of domestic sewage, it was apparent that obtaining consistent BOD's for untreated complex wastes was a difficult problem. But this was solved in addition to the determination of BOD of nearly all individual organic compounds in the effluent.



REACTION OF FISH TO WASTES is checked in the Southwest Research Institute's laboratory. Bluegills are in tanks on bench.

• BOD's of organics—The BOD's of some of the water-soluble organics in the effluent are in the table below. The 18 compounds having constant BOD values responded to test in the normal manner as does sewage: Calculated BODs were essentially the same for all dilutions incubated, including those having oxygen depletions below and beyond the 40 to 70% range used in reporting results.

BIOCHEMICAL OXYGEN DEMAND OF WATER-SOLUBLE ORGANIC COMPOUNDS

(5-day BOD at 20 deg C)

Compound	Theoretical oxygen demand per 1,000 ppm of compound (ppm)	BOD per 1,000 ppm of solution (ppm)	BOD as percent of theoretical oxygen demand
Acetic Acid	1,066	776	73
Formic Acid	348	*	......
n-Amyl Alcohol	2,730	1,616	59
iso-Amyl Alcohol	2,730	1,500	55
n-Butyl Alcohol	2,600	1,450	56
Ethyl Alcohol	2,085	1,438	69
Methyl Alcohol	1,500	900	60
n-propyl Alcohol	2,400	1,503	63
iso-propyl Alcohol	2,400	*	......
Acetaldehyde	1,820	1,270	70
n-Butyraldehyde	2,440	1,623	67
iso-Butyraldehyde	2,440	1,625	67
Formaldehyde	1,066	1,066	100
Propionaldehyde	2,200	*	......
Ethyl Acetate	1,815	1,132	62
Ethyl Aceto Acetate	1,720	1,200	70
Sodium Acetate	780	669	86
Calcium Formate	246	*	......
Methyl Formate	1,060	*	......
Sodium Formate	235	*	......
Ethylene Glycol	1,290	*	......
Du Ethylene Glycol	1,510	*	......
Acetone	2,200	1,395	63
Methyl Ethyl Ketone	2,440	1,545	63
Methyl Isobutyl Ketone	1,720	2,139	79
Glucose (anh.)	1,066	617	58

* These values are given in the graphs.

Some compounds exhibited bacteriostatic effects (inhibiting bacterial life). BODs for eight compounds of this type increased with decreasing concentration in incubated dilutions—i.e., with decreasing toxic effect on the bacterial used. These data (graphs) are represented in general curves of the rectangular-hyperbolic type. Apexes of curves indicate toxicity threshold concentrations of the compounds, for example, 10 ppm for sodium formate.

Some of the constant-value-BOD compounds in the table are also bacteriostats. Some are actually bactericides. These effects were not exhibited in the concentration range studied, which was limited by amount of dissolved oxygen (7 to 9 ppm) in dilution water. The standard BOD test must be modified or other methods employed to determine toxicity threshold concentrations of compounds.

• Pilot plant—A small-size trickling filter was built and put into operation as part of the research program. Combined effluent was delivered to it as feed. Progress of this investigation is encouraging. It appears that a system of high-rate trickling filters with intermediate and finishing lagoons may satisfy.

• Men in charge—E. R. Strong, F. W. Bieberdorf and R. Hatfield of the agricultural and chemical research division represent the Southwest Research Institute. SRI is located in San Antonio, Texas.

F. D. Mayfield and J. L. Ragan, chemical engineers, are their counterparts for the Celanese Corporation of America.

BOOK REVIEWS

Text on beams

Elementary Theory and Design of Flexural Members — By Jamison Vawter and James G. Clark. 215 pp. John Wiley & Sons, New York; Chapman & Hall, London. $4.

This book is intended for use in an elementary design course that comes between strength of materials and courses in bridge and building design. Or it can be used to precede separate advanced courses in steel and reinforced concrete. It deals with stresses due to bending in homogeneous and nonhomogeneous, symmetrical and unsymmetrical beams, including those with thin webs, such as are encountered in aircraft design. It also covers elementary design of steel and reinforced concrete beams and columns. Where possible, formulas have been avoided, with the thought that the student will thus obtain a clearer picture of the behavior of beams.

Stresses in materials

Statics and Strength of Materials—By J. O. Draffin and W. L. Collins. 398 pp. The Ronald Press Co., New York. $6.50.

This text was written for students in technical and architectural courses who do not expect to pursue a rigorous engineering curriculum and have not completed a course in calculus. Statics, treated in Part I, covers the analysis of coplaner force systems by the algebraic method. One chapter presents the analysis of space frames. Part II deals with strength of materials and covers such topics as simple structural elements involving direct stress, welded connections, torsion, bending and column action. In a chapter on the mechanical properties of materials and working stresses, data are presented on lightweight alloys, high-strength steel and plastics.

Pavement design methods

The Design of Flexible and Rigid Pavements—By Robert Horonjoff and John Hugh Jones. Paper bound, 94 pp. University of California Press, Berkeley, Calif. $2.50.

Five methods of flexible pavement design are described in some detail in this text for a graduate course in highway and airport surfaces. These methods are the California bearing ratio method, the Canadian method, the Civil Aeronautics Administration method, and the California stabilometer method. Seven other methods used by state highway departments are described briefly.

Also included is a chapter on the design of rigid pavements describing methods the Portland Cement Assn. has adopted from analyses devised by Dean H. M. Westergaard of Harvard and others.

This paper-bound text thus affords a convenient comparison of these design methods. They are presented in sufficient detail for actual use and have the advantage of being in one book. Some of these methods are of very recent origin. For example, the Canadian method was summarized in Engineering News-Record in four articles in April, May, and June, 1949.

New irrigation text

Irrigation Principles and Practices—Second Edition, By Orson W. Israelson. 405 pp. John Wiley & Sons, New York 16. $6.

This second edition of Mr. Israelson's book marks a relatively complete revision of the original text. Data on flow of water in soils are simplified and expanded. Added are chapters on the consumptive use of water and the social and administrative aspects of irrigation. Of great value to professional irrigationists as well as to students is a 300-reference bibliography of recently published articles and books relating to the subject.

The book's major aim is to serve as a text for a basic college course in irrigation. As such it covers many topics closely allied to the main subject. And that seems to be a major fault of the presentation. Too many subjects are lightly touched upon. Few are considered in adequate detail. But the book is up to date, which is a rarity in books on irrigation.

Structural analysis

Theory of Modern Steel Structures—Abridged Edition, by L. E. Grinter. 424 pp. The Macmillan Co., New York. $6.50.

Vol. I of the unabridged edition has been reduced 25% and Vol. II 45% to produce this text. It is intended to meet the need of institutions where shortened curricula make it impossible for the instructor to treat a major part of the contents of the two volumes. Study of the abridged edition will apparently entail no loss in the student's understanding of simple structures. However, treatment of statically indeterminate structures is only of an introductory nature. The text covers simple roof and bridge trusses, plate girders, portal frames and diagonally braced frameworks. A chapter on deflections is introduced as a base for the study of indeterminate structures, for which several methods of analysis are presented—classical, moment and shear distribution and balancing of end-angle changes.

New Engineering Books

Explanatory Handbook on the British Standard Code of Practice for Reinforced Concrete—By W. L. Scott, W. H. Glanville and F. G. Thomas. 119 pp. Concrete Publication Ltd., 14 Dartmouth St., London, S. W. L. Price 9 s. Obtainable through Steckart-Hafner, Inc., 31 E. 10th St., New York 3.

Strength of Stainless Steel Structural Members as Function of Design—By Michael Watter and Rush A. Lincoln. 153 pp. Allegheny Ludlum Steel Corp., Pittsburgh, Pa. $5.00

Foundations of Structures—By Clarence W. Dunham. 679 pp. McGraw-Hill Book Company, New York, Toronto and London. $7.50

Elementary Theory and Design of Flexural Members—By Jamison Vawter and James G. Clark. 215 pp. John Wiley & Sons, New York 16, and Chapman & Hall, London, $4.00

Water, Land, and People—By Bernard Frank & Anthony Netboy. 331 pp. Alfred A. Knopf, Inc., New York 22. $4.00

Building Operation & Maintenance—By C. A. March. 384 pp. McGraw-Hill Book Co., New York, Toronto and London. $6.00

List of Equivalent Valves—First Edition. A guide to the differences between the valves of 18 manufacturers. 186 pp. Published by the Hooper Publishing Co., 545 Sansome St., San Francisco, Calif. $15.00

Handbook of Human Engineering Data for Design Engineers—Prepared by Handbook Staff, Tufts College, in cooperation with Technical Publications Division, Jackson & Moreland, Engineers. 370 pp. Obtainable from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D.C. $5.00

How to Survive an Atomic Bomb—By Richard Gerstell. Cloth Edition. Published by Combat Forces Press and Rinehart & Co., New York 16. $1.95. Paper-bound newsstand edition published by Bantam Books, Inc. 25c.

(Continued from page 52)

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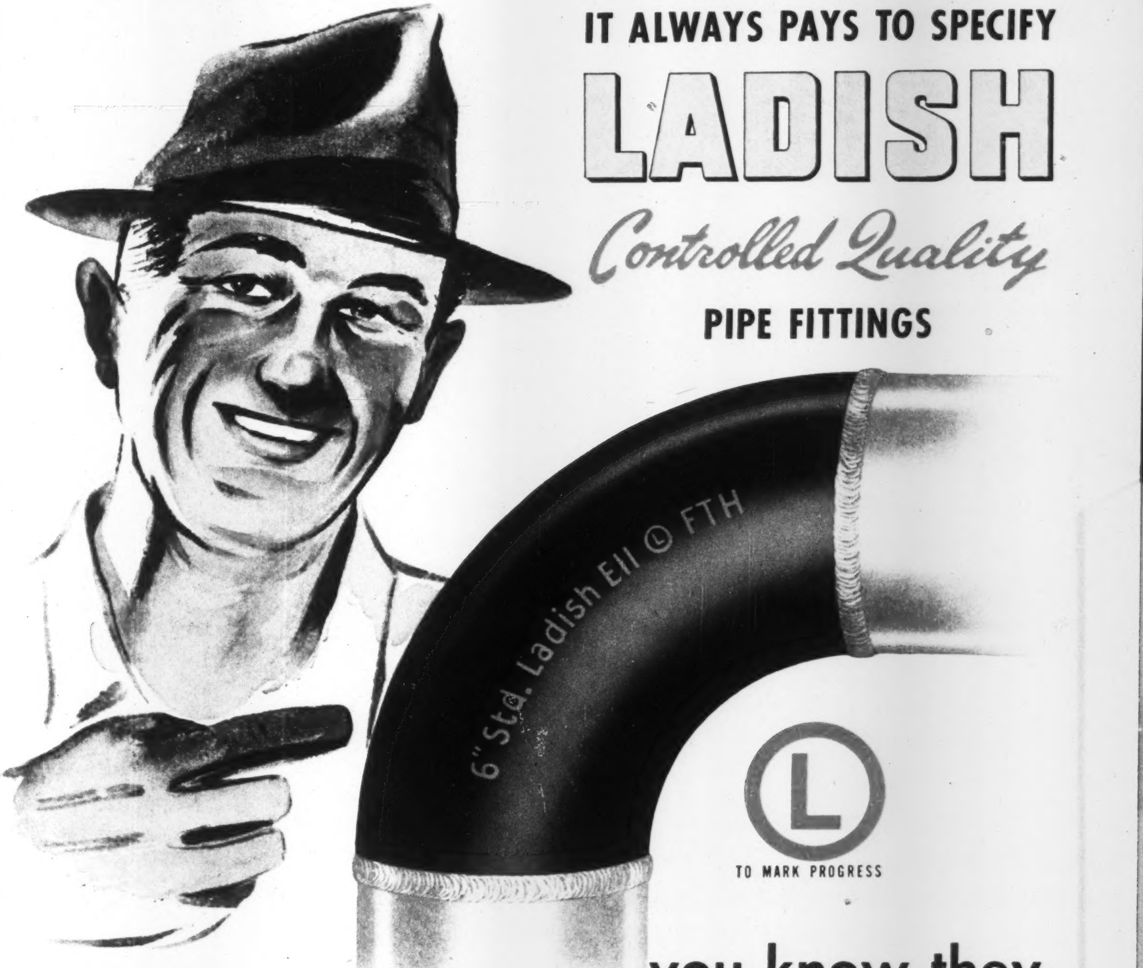

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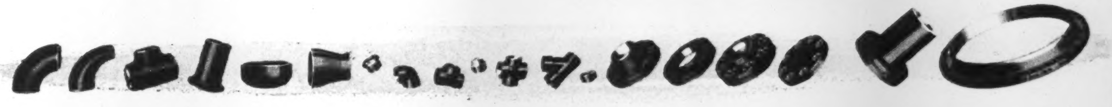

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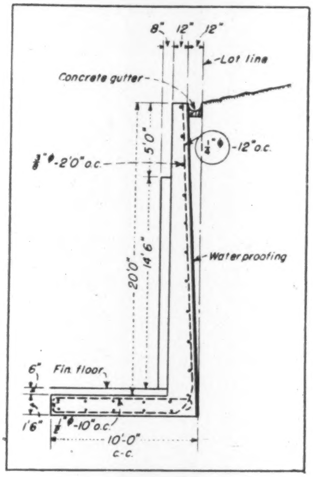


RETAINING WALL was conservatively designed but failed due to careless drafting.

Careless dimensioning fells a concrete wall

Not long ago, a well designed and carefully executed reinforced concrete retaining wall failed. Though founded on dense glacial gravel and backfilled with good coarse sand, it cracked and tipped during the backfilling—because of a poorly drawn detail. (See circled reinforcing-bar dimension in sketch.)

This wall was to serve as the rear enclosure of a garage. Pilasters were to carry garage roof beams.

An analysis of the design showed no possible cause of the failure, although some strange clauses were found in the specifications: "Contractor shall obtain all permits, including the filing of plans with the proper authorities." All concrete was to be 1:2:4 stone or gravel mix, but "where concrete walls are reinforced, mix shall be 1:1½:5."

The job was in a small community beyond the jurisdiction of New York City, and the contractor did file the architect's plans with the local authorities. The local building inspector issued a permit to construct the wall. In the records appears the notation: "Have checked the design of the retaining wall and find same OK and according to general engineering practice. I suggest, however, three additional ⅝-in. reinforcing rods 2 in. from inner faces of each pilaster to compensate for any tension (and prevent cracking) due to any additional load that may accrue due to future construction adjoining said wall."

The wall, however, did fail. It broke in many places and deflected so far inward that the pilasters could no longer serve the desired purpose of supporting the garage roof. When the first section of wall was demolished—merely by pulling out temporary wood shores—the cause of failure was apparent: Vertical reinforcing consisted of ¼-in.—instead of 1¼-in.—smooth, round rods space 12 in. apart.

The reinforcing order sheets were then located and they read:

(a) 116 pcs—½-in. rd def bars—15 ft

(b) 100 pcs—¼-in. plain rd rods—30 ft

(c) 15 pcs—⅝-in. rd def bars—30 ft

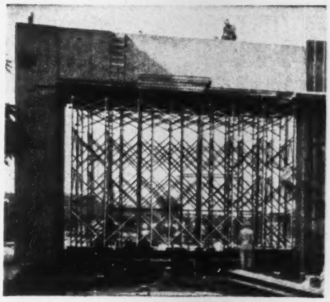
(d) 110 pcs—⅜-in. rd def bars—22 ft 6 in.

These items were easily identified as, respectively, footing bars, the mistaken reading for the main verticals, bars added in accordance with the building inspector's recommendation and longitudinal spacers.

The steel supplier, the construction superintendent and the reinforcing-placing foreman were then interviewed. Each expressed surprise at the error, agreed that it was certainly unusual to have the lightest bars where the strongest should be, but disclaimed responsibility because the work had been strictly supervised and approved. There actually was a record of such supervision by both the local building inspector and by the architect's representative.

Yet, this mistake, caused by the careless overlap of the dimension line with the one of the 1¼, was missed by all of the supervision. The drafting slip cost some $25,000 and three months' loss of time in completion of the project. The rebuilt wall, upon the insistence of the owner, was doubled in thickness, in both stem and base, and had the larger bars placed as originally planned.

Do you find the reports in this department of help to you? ENR is happy to pass these suggestions along to other readers. So, if you have any ideas that you think would be of interest to others, send them to ENR'S Field and Office Editor at 330 W. 42nd St., New York 18, N. Y. We will pass them on. And remember, Engineering News-Record pays for published items.



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Deming Fig. 4703 (illustrated) is a vertical turbine type pump designed for pumping gasoline, oil and industrial solvents from underground tanks or from tanks located above ground where it is desirable to have pump located at top of tank.

Capacities range from 15 to 75 G.P.M. for pressures up to 100 lbs., depending upon capacity.

Single or three phase motors with ratings from ½ to 2 H.P. are optional in vertical solid shaft explosion proof type (for hazardous conditions), or standard open type motor (for non-hazardous conditions).

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Discharge head of heavy cast iron construction has 9" diameter base for mounting on standard 4" companion flange. Discharge is threaded for 2" standard pipe.

Bronze semi-enclosed adjustable, impellers in bowl assembly are mounted on stainless steel impeller shaft with split, tapered steel sleeves and bronze locking nuts.

For more details on this and other Deming Turbine-Type Pumps, write for BULLETIN No. 4700.

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SPECIFY DEMING PUMPS

(*Continued from page 48*)

Industrial Plant Location: Its Application to Zinc Smelting—By Carl Hayden Cotterill. 155 pp. Published through American Zinc, Lead & Smelting Co., St. Louis, Mo.

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Long Span Roof Structures for Auditoriums—Reprinted from Architectural Forum. Ammann & Whitney, 76 Ninth Ave., New York 11.

A Bibliography of Highway Planning Reports—Compiled in the Library of the Bureau of Public Roads, Superintendent of Documents, Washington 25, D. C. Price 30c.

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A Volume Warrant for Urban Stop Signs—Published by the Eno Foundation for Highway Traffic Control, Saugatuck, Conn.

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A Study of the Behavior of Floorbeam Hangars—Structural Engineering Reprint No. 2, October, 1949. Engineering Experiment Station, Purdue University, Lafayette, Ind.

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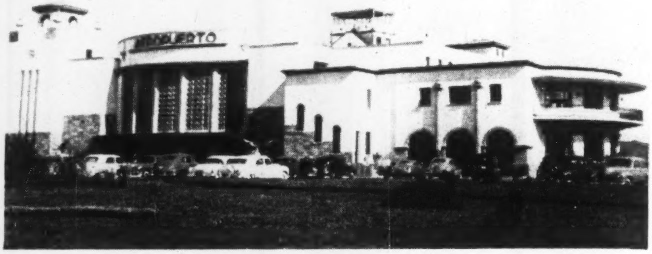

THIS FINE AIRPORT TERMINAL, costing $3,000,000, is symbolic of El Salvador's prosperity and is indicative of that little country's desire to extend its commerce and international contacts.

El Salvador hits the jackpot

The smallest of the Central American republics, El Salvador, apparently has hit the economic jackpot.

Most concrete evidence of this is the fact that the little country is building a $30,000,000 TVA-type power project.

And during the last season El Salvador sacked up the biggest coffee crop in its history—about 1,259,000 bags, and even the bags were made in its own factories from hemp grown on its own plantations. Other crops are cotton, sugar, beans and tobacco.

El Salvador's roads are being paved from border to border of the country. It is building a $3,000,000 airport terminal and starting construction on a $3,000,000 air-conditioned hotel.

The huge new Lempa River power project will tap the largest river flowing into the Pacific south of California. The initial contract for $10,000,000 went to the J. A. Jones Construction Co. of Charlotte, N. C. A loan of $12,545,000 from the World Bank, not hard to get with El Salvador's credit rating, is backing the project. About 50 U. S. technicians are already on the spot to work on the project, which at first will furnish 30,000 kw and eventually 75,000 kw.

With a population of 2,250,000 and an area about that of Maryland, this hard-working country has a fine financial record. Its currency is backed 100 percent by U. S. dollars.

In the center of the capital, San Salvador, land is worth $240 per sq. yd., and some residential land is worth $17,000 per acre.

U. S. municipal experts make Sao Paulo survey

State and city officials are mulling over American-drawn proposals for the planned expansion and modernization of Sao Paulo, Brazil, South America's leading industrial city. In all, the city planning project would involve expenditure of more than $150 million over the next ten years.

The plan was drawn by an 11-man panel of New York municipal service experts headed by Robert Moses, president of the New York Triborough Bridge & Tunnel Authority and one of the world's leading city planners. The panel visited Sao Paulo at the request of officials, through Nelson Rockefeller's International Basic Economy Corporation as intermediary.

Besides Mr. Moses, members are Sidney H. Bingham, William S. Chapin, Frederick A. Collins, Richard H. Gould, Arthur D. Hodgkiss, William H. Latham, Thorndike Saville, Sidney M. Shapiro, George E. Spargo, and Harry Taylor.

The report includes recommendations for a mass transportation system, a comprehensive arterial highway network, development of parks and playgrounds, improved water supply and sewage disposal systems, and reclamation of the extensive lowlands on the outskirts of this city of about 2,000,000 population, the center of Brazil.

In addition to detailed recommendations, including mapping and

(*Continued on page 57*)

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These intermediates assure highly legible shop prints at Cooper-Bessemer's branch plant in Grove City, Pa. Even after hundreds of machine feed-throughs, Autopositives produce sharp, clean prints which are easy to read. And there's another advantage—print production is simplified, for Autopositives can be run at uniform, practical machine speeds—without frequent adjustments.

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Extending Use of Autopositive. The assembly lines at Cooper-Bessemer's home plant are also seeing shop prints produced from Autopositives—will soon see many more. Plans are under way to protect some 50,000 valuable originals against the wear and tear of print-making by reproducing them on low-cost "Autopositive." The same production routine currently employed will be followed: *exposure* in a direct-process machine; *development* in standard photographic solutions.

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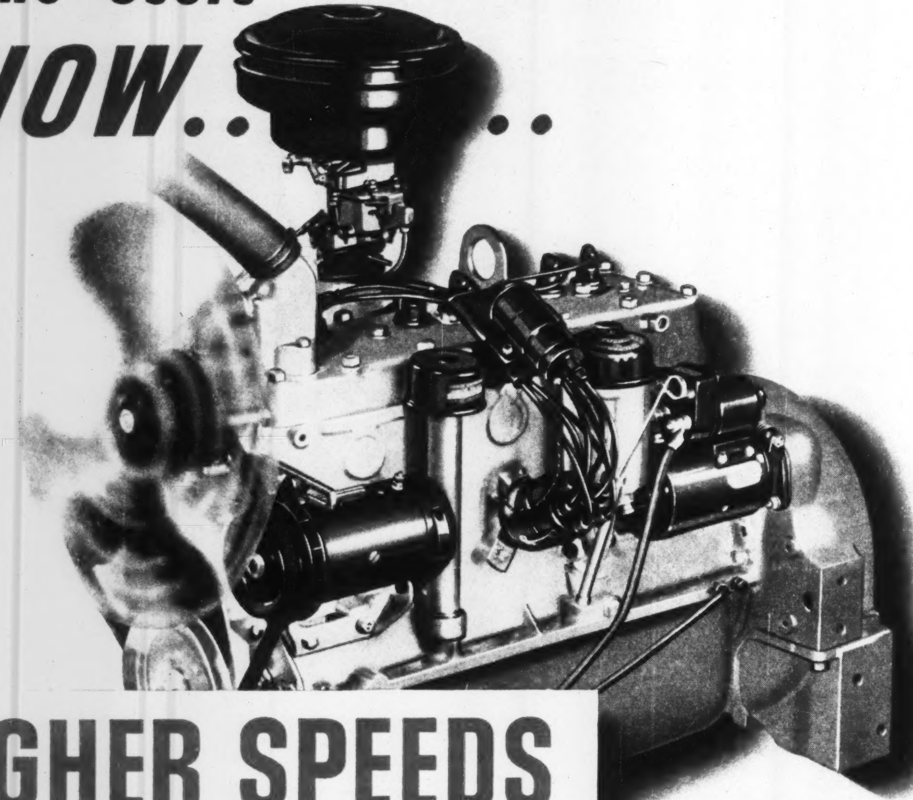

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CHRYSLER

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zoning, the report presents alternative suggestions for financing the program.

Typical suggestions include these:

"We have concluded that subways are too expensive at this time and that a reasonable acceptable solution can be financed by adding 500 extra large modern buses, improving terminals and streets, pending main vehicular arterial construction for rapid transit.

"The Pinheiros Canal can be deepened and widened and additional bordering flooded lands reclaimed.

"Rights of way and other lands required for public improvements, including expressways, bridges, railroads, transmission lines, recreation facilities, etc., would be wholly or largely dedicated to the city and state. The cost of these improvements would be provided wholly or in large part out of net profits from the sale of canal lands.

"Sao Paulo has polluted its river and canal waters and a complete sanitary sewage disposal system is urgently needed. Such a system ultimately will involve five plants at strategic locations. The combined water and sewer rates collected are sufficiently high to provide funds to complete an adequate water supply in a relatively short time. The construction of the first stage of a sanitary sewage disposal system within five years should be expedited by the sale of short-term bonds serviced by the existing sewer and water tax.

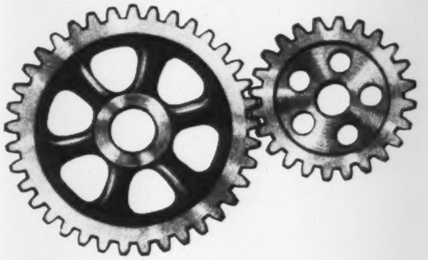
Russia speeds water link from Baltic to Black Sea

The Cominform has been instructed to speed up the Soviet-sponsored project of building a continuous waterway from the Baltic to the Black Sea, according to a report from the London *Daily Telegraph's* Vienna correspondent. The project was originally intended for completion in 1955.

So far, only preliminary work has been done on two main canal links. The first, when completed, will join the Upper Oder from Cosel, Poland, to the River Moravia, which flows into the Danube at Bratislava.

The second will run due east from the Danube at Cernavoda, Rumania, to the Black Sea north of Constanza, thus shortening the final part of the waterway by 150 miles.

A "Society of the Danube-Oder Canal" was recently founded in Czechoslovakia to hasten the project. The Morawa canal has become even more urgent since Czechoslovakia transferred her iron ore sources from Sweden to Russia.



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MUNICIPAL AFFAIRS

News of parking activities

New York City—The new parking authority has now been organized. It will immediately seek federal advance planning funds for the preparation of contract drawings for five parking garages in various sections of the city.

Minneapolis, Minn.—Work is expected to start soon on two multi-level off-street parking structures in the loop district, under the sponsorship of Downtown Auto Park, Inc., which has retained National Garages, Inc., as its parking consultants and project managers. Larson and McLaren, Minneapolis architects, and D. L. Briegel and Associates, consulting engineers, Detroit, are preparing working drawings and specifications and will supervise construction. There will be space for 1,400 cars.

Boston, Mass.—RFC has granted a loan of $12,000,000 for construction of a parking area under Boston Common. Estimated capacity is 4,500 cars. There will be atomic bombproof shelter provisions.

Columbus, Ohio—City council has ordered two city-owned lots in the downtown area opened for free parking of 500 automobiles.

Detroit, Mich.—City is preparing to borrow $48,200 to pay for plans for a 3-story parking building to cost $3,300,000 and take care of 800 cars, but that is only one of many such measures necessary as Detroit traffic has increased 28 percent in the last 5 years.

Youngstown, Ohio — Officials are making a detailed study of a proposed $7,000,000 overhead parking project to span the Erie R. R. tracks east of Fifth Ave.

Wilmington, Del.—According to E. D. Griffenberg, president of the local zoning commission, the lack of adequate parking facilities is to a great extent responsible for the absence of any large building development in Wilmington. The zoning commission is strongly recommending the creation of a parking authority with extensive powers to correct the condition.

Raleigh, N. C.—City council has voted to request the 1951 session of the State Legislature to enact legislation which would permit the city to set up a parking authority with power to build a 4-story parking building to cost an estimated $700,000. Present plans call for razing the present City Hall and building the parking building on that site. A new city hall would be erected adjacent to the city memorial auditorium.

Indianapolis, Ind.—Downtown business men financed a new 5-story parking garage for 575 cars at Illinois and Maryland streets. In the meantime, at a safety board meeting automatic parking restrictions were proposed to eliminate choked traffic on narrow streets of the city—those 30 ft wide or less.

St. Louis, Mo.—A recent downtown parking survey by the Missouri State Highway Department and the U. S. Bureau of Roads showed that 31 percent of the curb parking in the central business district of St. Louis is done illegally.

Baltimore, Md.—Three multi-storied parking garages now under construction assure 638 additional downtown parking spaces. Four others, already completed, bring the total new spaces to 1208.

Miami, Fla.—The central business council of the Urban Land Institute has recommended the immediate purchase of more parking lots fringing the downtown business area of Miami, and has also suggested the building of new multi-story garages on the perimeter of the downtown district.

Syracuse, N. Y.—The local parking authority asserts that it could become self-supporting if it were deeded James Plaza and given the receipts from curb parking meters.

CITY OF SEATTLE
LIC SAFE DI

SALMON AND DOLPHINS—Seattle, Wash., is sometimes called the "salmon capital of the world" but its new $6,000,000 Public Safety Building, nearing completion, will be adorned over the main entrance with two bronze dolphins, symbolic of the city's position as a center of deep-water commerce. When the city's official seal was adopted in 1937, salmon fishermen were dissatisfied but the dolphins stayed on the seal and now have made the grade on the new municipal building as shown by the photo above.

way Airport has boosted the city's income from that source by 153 percent in nine months, Public Works Commissioner Oscar Hewitt has reported. The lot was turned over to Parking Associates Inc. on Nov. 1, 1949. The contract called for the city to get 72 per cent of the gross revenues. Parking charges remained the same.

Hewitt's report showed that in the first nine months of 1950 under private management the gross revenue totalled $179,557, compared with $70,868 in the corresponding period of 1949 under city management. The city's income was $129,281 against $40,000 in the 1949 period. The number of cars parked rose to 448,010 from January through September, 1950, against 237,607 in the same nine months last year. The city is studying 65 sites in outlying business districts to install 15,000 parking meters. City Traffic Engineer Leslie Sorenson estimates that there is a demand for 45,000 meters in Chicago.

Buffalo, N. Y.—This city needs downtown parking facilities for about 4,000 more cars now and will need facilities for 7,000 more than it has now by 1960, a partner in the engineering firm that is making comprehensive economic development study for the city declared recently. "Buffalo's parking problem is no more difficult than it is anywhere else and it is a lot better than many places," James H. Stratton of the Knappen Tippetts Abbett Engineering Company asserted.

Winnipeg rehabilitation—Winnipeg, Man., is nearing the end of its rehabilitation job following the disastrous spring flooding of the Red River. (ENR May 25, page 26). The Greater Winnipeg Dyking Board has announced that construction is nearing completion on the $5,000,000 30-mile system of earth dikes to give the city constant protection up to a 26.5-ft water level. Only in the vicinity of two vital city bridges is the crest level of the dikes being made high enough to afford future protection against a water level of 30.3 ft. such as happened last spring. W. R. Forrester, of the Red River Valley Board has announced that his board has made awards of $9,700,000 to 11,156 home and property owners who suffered flood damage. About 450 homes damaged by flood are still not occupied. Many homeowners are reported to be having difficulty in getting contractors to do repair work that is necessary to put their homes back into good condition.

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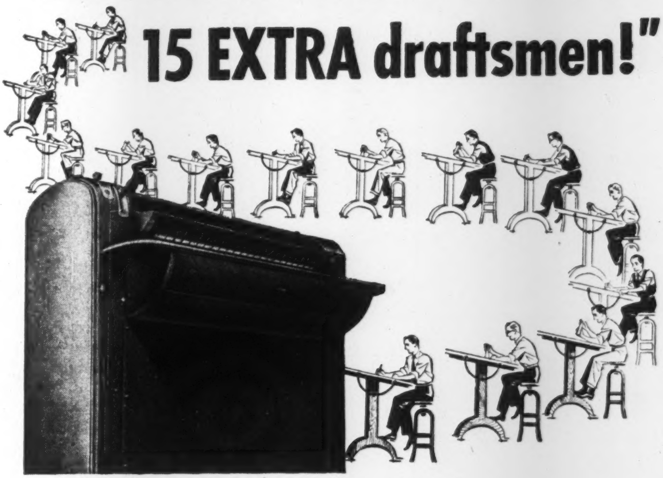

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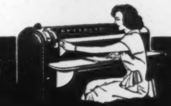

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MEN AND JOBS

Wm. J. Quinn is field engineer for relocation work around Trenton Dam and Swanson Lake, Bureau of Reclamation project. Work will involve the construction of 19 miles of main line of the Burlington Railroad, 15 miles of U. S. Highway 34 and 10 miles of county roads. The work will cost seven million dollars.

A. J. Rayner, new executive secretary of the New York State Bituminous Concrete Association, formerly was field representative of the Associated General Contractors. Earlier in his long career with the highway construction industry, Rayner worked with the Massachusetts Highway Department, the Barber Asphalt Co., and the Virginia Road Builders Association, as well as with other contractor groups and organizations.

Harvey D. Weidman of Baraboo, Wis., has been elected Sauk County highway commissioner. He was graduated from the Platteville, Wis., Institute of Technology in 1916. For many years has was an engineer in the Philippines and from 1947 to 1949 was in charge of rebuilding of Manila's main four-lane avenue.

Shelby Edwards, Ashland, Ohio, is now engineer for the village of Loudonville, Ohio.

J. B. Reher, engineer in charge of design for the Bureau of Public Roads in Division No. 10 at Juneau, Alaska, has retired. He has been with the bureau for 32 years, mostly at Portland, Ore., but also at Seward, Alaska, and since 1948 at Juneau. He represented the bureau in the joint reconnaissance with the Army in 1942 that led to the adoption of the route of the Alaska Highway between Watson Lake, Y. T., and Big Delta, Alaska, and completed the location, survey and design for that section.

David F. Dabney, assistant city traffic engineer of New Orleans, La., has resigned to become traffic engineer for Albuquerque, N. M. He is a graduate of Virginia Polytechnic Institute and took post graduate work in traffic engineering at Yale University.

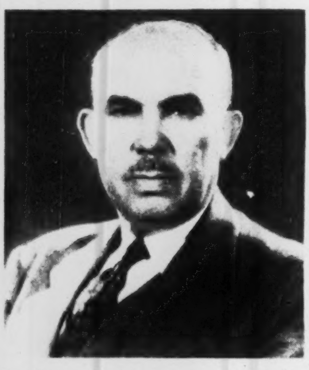
George H. Hoganson has been promoted from assistant engineer in the regional engineering office of the Canadian National Railways at Monoton, N. B., to assistant division engineer there. He is a graduate of the Nova Scotia Technical College, Halifax.

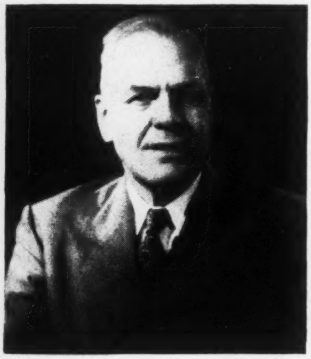
George W. Marx, director of the Arizona health department bureau of sanitation has been appointed chairman of the advisory council of Colorado Basin Engineers, whose program will deal with streams, particularly aiming at Colorada River pollution control in areas where recreational and industrial developments are endangered.

George F. Haskell, office engineer of the Boston, Mass., Sewer Division for 50 years, was among six municipal employes recently honored for their public service. During Mr. Haskell's half-century of service, he was responsible for the drafting and detail plans of the city's sewage system and he played an important part in the development of the main drainage system.

Joseph Self, Sr., has been honored for 40 years of service with the American Water Works Co., Muncie, Ind.

Albert A. Korves has joined O'Brien & Gere, consulting engineers, 204 E. Jefferson St., Syracuse, N. Y. He has been engineer and manager of the Syracuse division of the N. Y. Water Service Corp. He is a 1919 graduate of Lehigh University. With long experience as an hydraulic engineer, at present he is resident engineer for O'Brien & Gere on construction of the Cicero-Oneida Lake Water District system. He is also working on water storage tanks for the Central N. Y. villages of Liverpool and Marcellus.





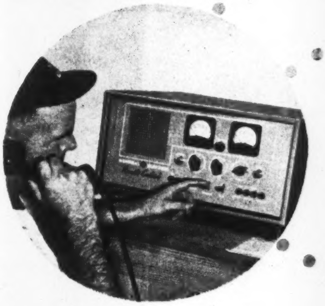
Engineering personnel changes in PG&E

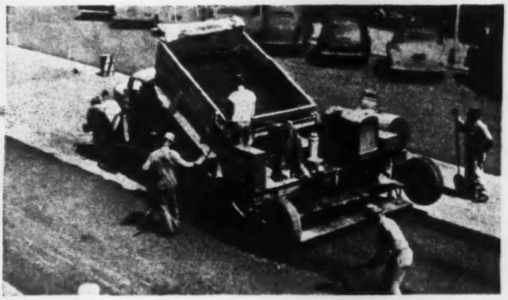
Three engineering and construction executives have retired from the Pacific Gas and Electric Co. They had a share in supervision of the West Coast company's recent $800,000,000 expansion program. Otto W. Peterson, center, manager of the general construction department for 30 years, has been succeeded by A. J. Swank, his assistant manager. A graduate of the University of California, in 1907 Peterson became construction engineer of the California Development Co. He later became division engineer on the Los Angeles Aqueduct. He was chief engineer and general superintendent of the Suribong Water Power Project in Korea in 1918. During his service with P. G. and E. he supervised construction of the Super Inch pipe line, 501 mi long. A. J. Swank, left, a graduate of the University of California, joined the company in 1919, became construction superintendent in 1924, and assistant manager of the construction department in 1950. John A. Koontz, right, chief of the division of hydroelectric and transmission engineering, retired after 38 years of service with P. G. and E., and was succeeded by W. R. Johnson. A California Institute of Technology graduate, Koontz became assistant to the superintendent of operations of the Great Western Power Co. and helped design several powerhouses. Upon Great Western's merger with P. G. and E. in 1930 he became assistant and later chief in the division he is now leaving.

How to control 10 jobs at once

AND MAKE MONEY!

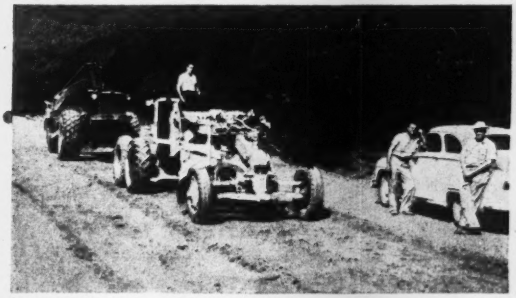
2-WAY RADIO





Radio control saves $600-$700 an hour. When paver breaks down, radio message shuts off bituminous plant miles away, saves fuel oil, heating time, labor and mileage.

Job superintendent in the field calls headquarters 20 miles away. Via radio he can talk to foremen on other jobs in construction company work area.



Road grader, down for repairs, gets fast help from radio call to dispatcher describing trouble and requesting parts.

"Radio control saves us money every day we work," says Lee Blades of the Blades Construction Company, Hornell, New York. "We do road oiling, contractual work on bridges and highways, and operate a bituminous plant. Our jobs fan out in a 100-mile radius from headquarters, with crews and equipment spread over six counties."

Cut communication delay and you cut costs—in materials, in production, in manpower. In wide area operations, you need tight control. Why not talk it over with our G-E engineers—at no obligation? To get action, mail the coupon today.

CIVIL DEFENSE—For plant protection and community service, tie into your city's 2-way radio emergency network at little cost. Ask the General Electric Electronics Department office near you for full details.

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I'm interested in better communication for my business. Send me FREE BULLETIN on G-E 2-way radio.

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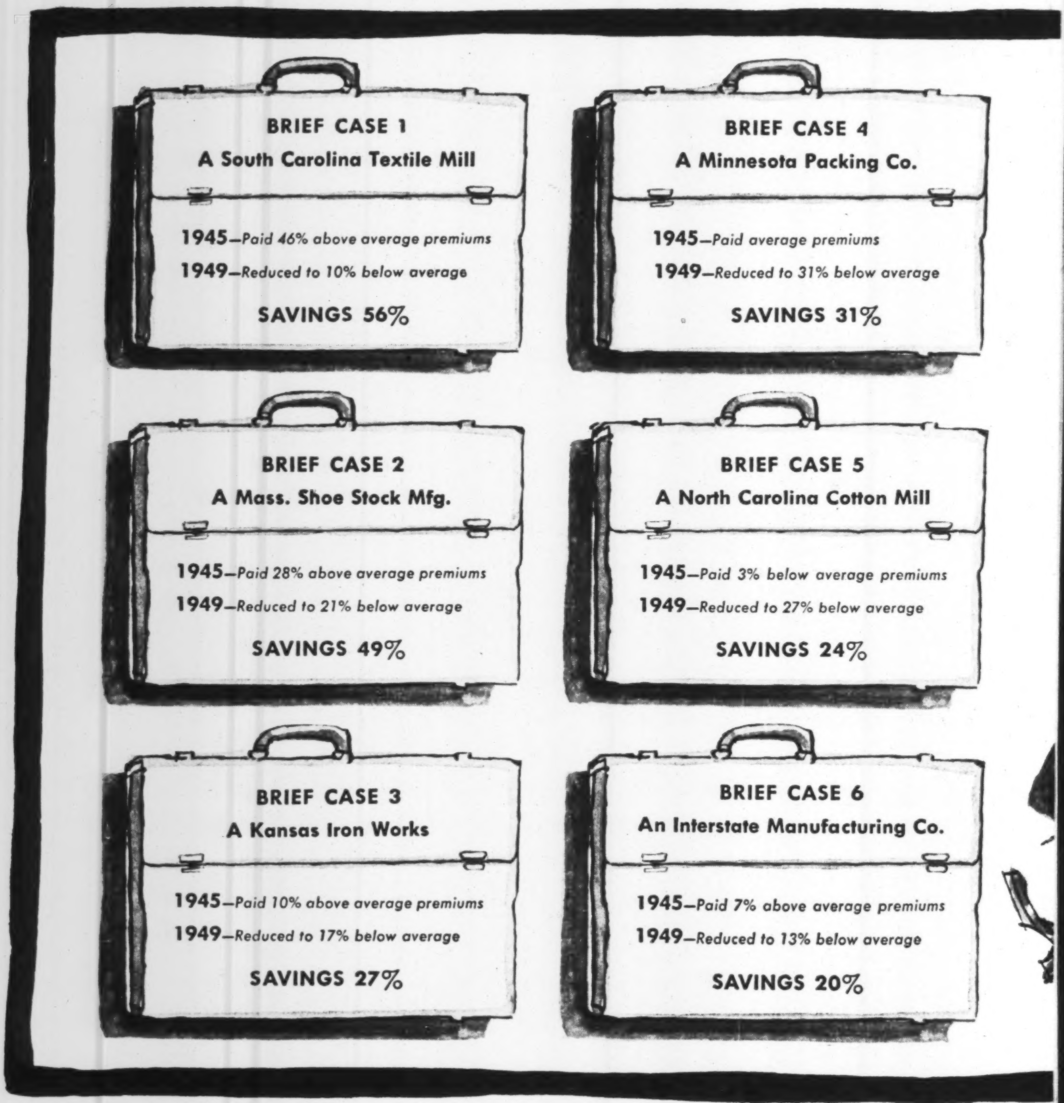
CITY…………………………STATE…………………

THE NINE BRIEF



BRIEF CASE 1
A South Carolina Textile Mill
1945—*Paid 46% above average premiums*
1949—*Reduced to 10% below average*
SAVINGS 56%

BRIEF CASE 2
A Mass. Shoe Stock Mfg.
1945—*Paid 28% above average premiums*
1949—*Reduced to 21% below average*
SAVINGS 49%

BRIEF CASE 3
A Kansas Iron Works
1945—*Paid 10% above average premiums*
1949—*Reduced to 17% below average*
SAVINGS 27%

BRIEF CASE 4
A Minnesota Packing Co.
1945—*Paid average premiums*
1949—*Reduced to 31% below average*
SAVINGS 31%

BRIEF CASE 5
A North Carolina Cotton Mill
1945—*Paid 3% below average premiums*
1949—*Reduced to 27% below average*
SAVINGS 24%

BRIEF CASE 6
An Interstate Manufacturing Co.
1945—*Paid 7% above average premiums*
1949—*Reduced to 13% below average*
SAVINGS 20%

This is the fastest way we know of to show you how American Mutual can step into a company and help reduce unnecessary accident hazards and unnecessary high insurance premiums. In these days of rising costs and inflation, isn't this special money-saving service worth looking into . . . especially when you consider that you also get an opportunity to make important *extra savings* through dividends!

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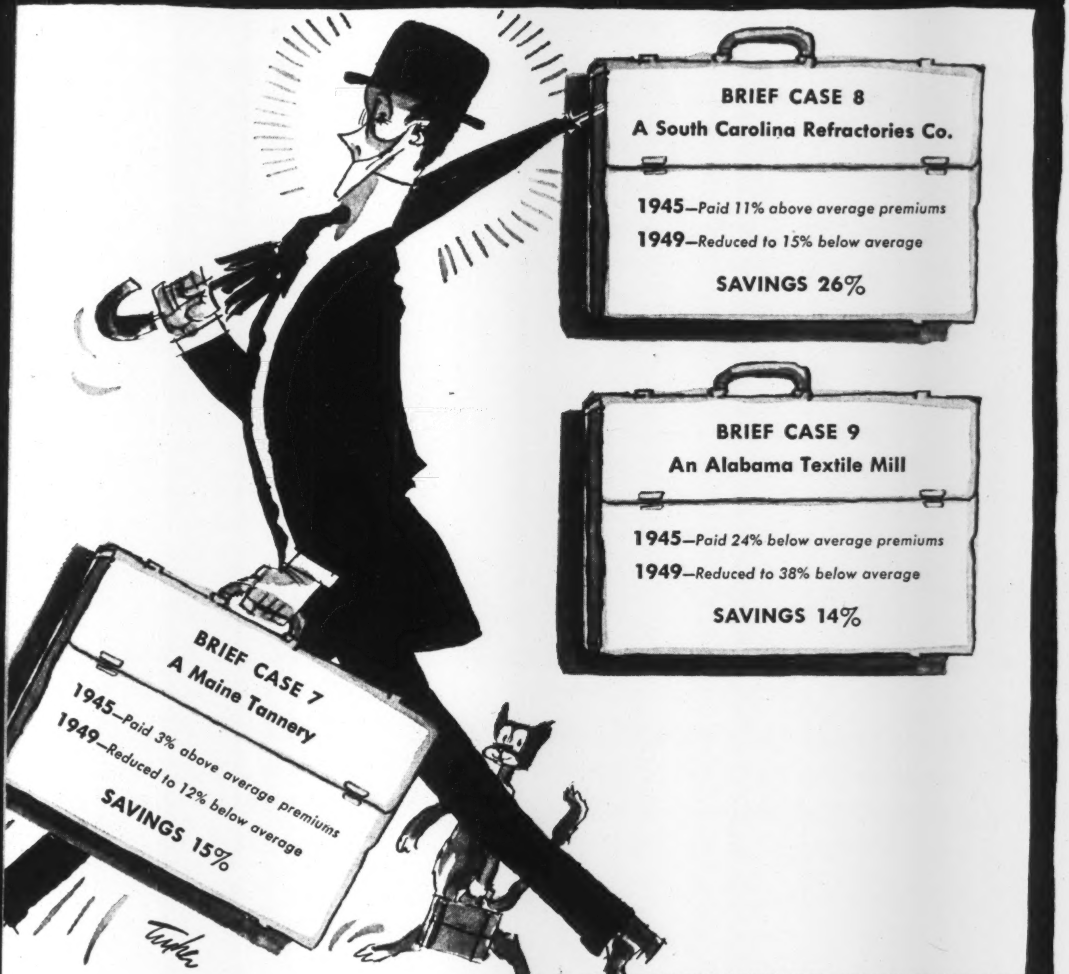
CASES... OF MR. FRIENDLY



BRIEF CASE 8
A South Carolina Refractories Co.

1945—*Paid 11% above average premiums*
1949—*Reduced to 15% below average*

SAVINGS 26%

BRIEF CASE 9
An Alabama Textile Mill

1945—*Paid 24% below average premiums*
1949—*Reduced to 38% below average*

SAVINGS 14%

BRIEF CASE 7
A Maine Tannery

1945—*Paid 3% above average premiums*
1949—*Reduced to 12% below average*

SAVINGS 15%

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142 Berkeley Street, Boston 16, Massachusetts

Without obligation, please *rush* to me information on *The All-American Plan* so that I may be richer and happier!

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Now!

New principle for backhoes provides

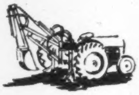
UNBELIEVABLE DIGGING POWER

It's in the New Sherman Power Digger!

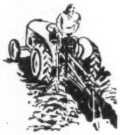
- Patented, actuated bucket gives you selective digging action, better loading, greater versatility.
- All-hydraulic action—made possible by heavy-duty hydraulic cylinders—assures efficient performance.

Specifications

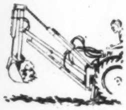
Shovel reach below ground surface	8 feet
Digger reach behind tractor	10 feet
Swinging arc	140°
Trench width, standard digging shovel, single cut	18 inches
Digging shovel capacity	3.5 cu. feet
Loading shovel capacity	5 cu. feet
Loading clearance, digging shovel, loaded	7 feet
Loading clearance, loading shovel	10 feet



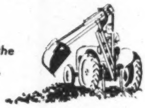
- *Standard tractor mounting gives unmatched maneuverability and transportability.*



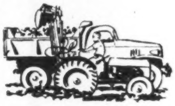
- *Digs ditches, trenches, footings, culverts, basements and other excavations.*



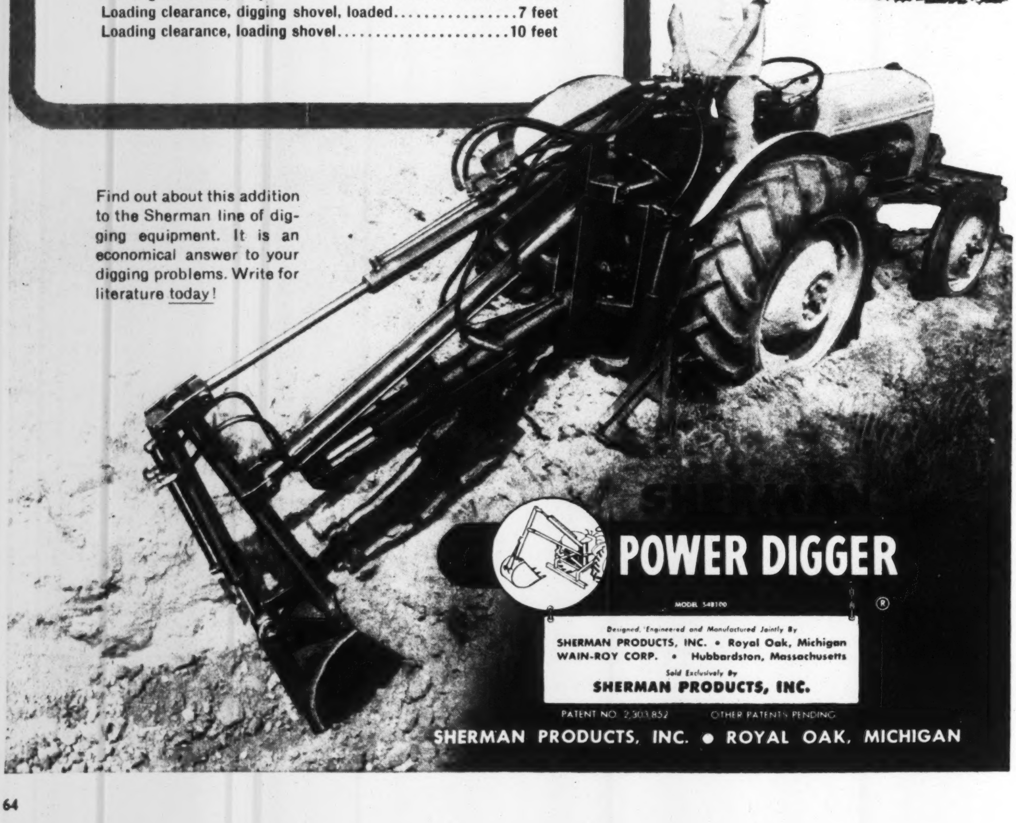
- *Handles roots, rocks, hard clay and oiled road surfaces.*



- *Works well behind the tractor at any angle.*



- *Actuated bucket raises high enough to load standard dump truck.*



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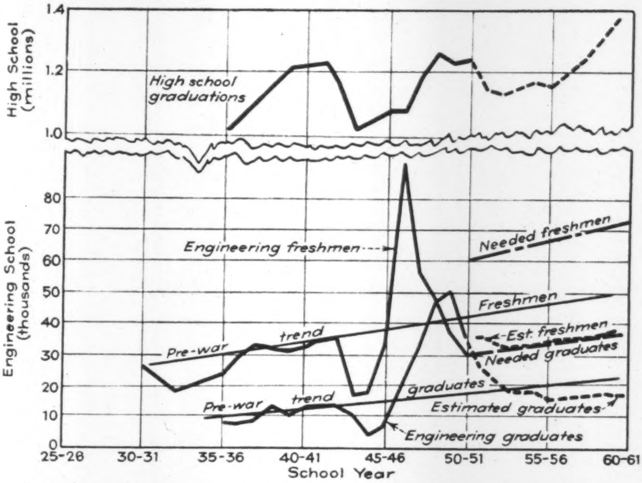

ENGINEER SHORTAGE—Supplementing the report of Dean S. C. Hollister of the college of engineering, Cornell University, concerning the threatened shortage of engineers, which he made to the Engineers' Council for Professional Development (ENR, Nov. 16, '50, Page 71) there is reproduced above a chart prepared by him. The lower curve shows the annual output of the engineering colleges of this country for the years 1935-36 to 1950-51. The number of high school graduates anticipated are shown at the top of the chart. Dean Hollister says "It seems possible that the 60,000 freshmen shown as needed may be at or above the available number that can be expected to enter engineering." So that the supply of engineering talent is sharply limited and will be more so as the need for military manpower increases.

Massachusetts public health work to be expanded

At the University of Massachusetts, Amherst, the field training center in sanitation and other public health work will utilize a grant of $141,712 from the Kellogg Foundation of Michigan to expand the state health department's activities in the Bay State. Dr. V. A. Getting, state commissioner of public health, announced that the grant will enable the center to expand in training physicians, nurses, medical social workers, health educators, and administrators. A shortage of health workers has been felt for some time. Dr. Getting said that the program will include supervised field training in the health departments of about a dozen cities, towns and counties. Ninety-five percent of the towns in Massachusetts lack full-time health departments. Communities with less than 35,000 population are required by recent legislation to combine in full-time health organizations within ten years.

Dr. Leon A. Bradley, former head of the University's department of bacteriology and public health, heads the training program. He is president of the Massachusetts Public Health Association and consultant on training services in the U. S. Public Health Service's Communicable Disease Center. This center, the university and the state health department, jointly sponsor the training center at Amherst.

Engineering grads get higher starting salaries

Engineering graduates are finding starting salaries about 3 percent higher now than they were a year ago, and more as compared with several preceding years, according to a survey by the N. Y. University College of Engineering.

Recently questionnaires were mailed by the college to the 367 members of the 1950 graduating class. There were returns from nearly half of them. The average starting salary, it was reported, is $260 a month as compared with $253 for 1949; $252 for 1948; and $227 for 1947.

In answer to the question "How did you obtain your job?", 20 percent of the responding students said it was through newspaper ads or news, agency or engineering societies; 34 percent through direct personnel inquiry; 23 percent through family or friends; 15 percent through New York University Placement Bureau, and 8 percent through the College of Engineering faculty.

NYU researchers study Scout-camp grease traps

New York University's College of Engineering has tackled the problem of removing greases from solution—for the Greater New York Council of Boy Scouts of America.

The research will be done as a public service preparatory to design of new sewage disposal systems for 12,000-acre Ten Mile River Scout Camps—where up to 4,000 boys are encamped at one time during the summer months.

Dishwashing with commercial soaps and rinse water at 150 deg F used to mean a 10 to 14-in. layer of removed grease in retention tanks after three months operation. Synthetic detergents and rinse water at 190 deg F have caused the thickness of the grease layer to decrease to 2 to 4 in., but the distribution tiles of the sand filters became completely clogged with grease.

Gerald Palevsky of NYU's civil engineering department and William T. Ingram, associate professor of public health engineering, are working with C. E. Pound, director of planning, construction and maintenance for the camps. Tests are being conducted in the Lewis Van Carpenter Sanitary Engineering Laboratory of the university.

Major study objective will be to correlate effects of temperature, type of detergent, baffling arrangements and timing of operation cycle of a grease trap to remove and retain suspended grease. Secondary objective will be to determine the effect of grease trap effluent, containing detergent, on intermittent sand filters.

Sam Shulits has been appointed associate professor of civil engineering at the Michigan College of Mining and Technology, Houghton. He has returned from Frankfurt, Germany, where he was with the Bipartite Control Office as Deputy Chief of the Plans and International Affairs Section of the Transport Group which administered the German Federal Transport System. He has taught at the Colorado School of Mines, the University of Iowa, and New York University. William S. Walker, formerly an engineer with the Dravo Corporation, is now associate professor of civil engineering. Mr. Walker received his engineering training at the Carnegie Institute of Technology. He served as a naval officer in World War II.

STOP

THAT LEAK
FOR **GOOD**

9 SIKA COMPOUNDS TO END REPAIR PROBLEMS ON CONCRETE AND MASONRY

FOR PRESSURE LEAKS

(SIKA No. 2, SIKA No. 4A) Leaks are easily sealed on the exposed side with quick-setting SIKA mortar. It is not necessary to relieve pressure. SIKA No. 2 is used against heavy pressure or bleeders, SIKA No. 4A against seepage or moderate pressure.

FOR JOINTS OR CRACKS

(IGAS JOINT SEALER, SIKA CAULKING) IGAS JOINT SEALER seals even against pressure and continual movement. Will not sag, crack, dry out, become brittle or lose adhesion. In work above grade, SIKA CAULKING is used where highest resistance to atmospheric change is desired.

FOR EXTERIOR REPAIRS

(SIKA-KOTE, SIKA TRANSPARENTS) SIKA-KOTE, a protective and decorative coating in 9 colors and white, prevents moisture penetration on concrete and masonry structures. SIKA TRANSPARENTS render brick structures water-repellent and preserve their appearance.

FOR NON-LEAKING SURFACES

(SIKACRETE, SIKA-KOTE) Water-resistant SIKACRETE mortar is used wherever cement-coat work is indicated. Economical, easy to apply SIKA-KOTE prevents penetration of ground-moisture.

FOR GUNITING OR PRESSURE GROUTING

(SIGUNIT, SIKA No. 4, PLASTIMENT) For quick work against leaks or in tidal areas, SIGUNIT in mortar prevents washouts. SIKA No. 4 (GROUT-SIKA) accelerates set, increases cohesion of mortar and adhesion of grout to rock.

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MEETINGS

W. E. Naumann, Tucson, was elected president of the Arizona Building Contractors. Other officers: L. L. Forbes, Phoenix, first vice-president; Cecil Moore, Tucson, second vice-president, and Louis Karp, Phoenix, treasurer. Directors: Curly Plath, H. P. Adams and W. C. Minniken, all of Yuma; John Putter of Tucson, and the past president, E. J. Wasielewski. Resolutions urging enactment of a state health and safety code to reduce the frequency of industrial accidents as a means of lowering industrial insurance rates, and favoring a limit to the amount of wages used as a basis for computing industrial insurance benefits, were adopted.

The Engineers Society of Pennsylvania has made a formal request to the city council of Harrisburg, Pa. to name a Harrisburg Recreation Council. The Engineers Society recommends that such a body make a study of recreation needs and recommend ways and means for financing them. The subject has been before the city council for more than two years.

Boyd C. Lindsay was elected 1951 president of the Associated Home Builders of San Francisco, succeeding Earl Popovich. A charter member of the group, Lindsay has been a director for the last three years.

Howard B. Hicks has been elected president of the Raleigh, N. C., Engineers Club, succeeding Frank H. Brandt. Other officers elected are: Richard F. Booth, vice-president; and Robert G. B. Bourne, secretary-treasurer.

A Morris County, N. J., chapter of the N. J. Society of Engineers and Land Surveyors has been established with 65 charter members. C. George Kruger was named president, Chas. Geiges and Chas. Williams, vice-presidents; Horace Patrick, secretary; and Robt. C. Budrick, treasurer.

Leo P. Byrnes has been elected president of the Home Builders Association of Albany, N. Y., to succeed William B. Pagano. Other new officers are: vice-presidents, James A. Rooney and Frank B. Mulligan; secretary, Sidney A. Friedman, and treasurer, John J. Cunningham.

David M. Hannah was re-elected president of the Niagara Frontier Builders Association. Others elected were: vice-president, Oscar R. Giesecke; secretary, William R. Albright, and treasurer, William H. Pearce. New directors are Joseph Battaglia, Raymond C. Dewey, G. Lawrence Mitchell, George F. Wallace, Jr. Kenneth E. Smalley and Leo J. Sullivan.

Conrad Miller is the new president of the Illinois Association of County Superintendents of Highways, M. J. Norby is vice-president, and L. H. Hinkle, secretary-treasurer.

New officers of the National Slag Association are: President, E. L. Flad; vice-president, C. A. Barinowski; managing director, E. W. Bauman; and treasurer, W. S. Shaw.

Grady S. Harrell of Shannon, N. C., has been named chairman of the Committee of Land Surveyors of the National Council of State Boards of Engineering Examiners, succeeding the late J. S. Dodds of Iowa. He has served as surveyor for Robeson County, N. C., for 18 years, and for 10 years has been on the N. C. Board of Engineering Examiners.

CALENDAR

N. W. Conference on Road Biulding, University of Washington, Seattle, Feb. 14-16.

N. J. Section, AWWA, luncheon meeting, Hotel Essex House, Newark, N. J., Feb. 14.

Midwinter Housing Conference, S. W. Research Institute's division of Housing and Construction Technology, Statler Hotel, Washington, D. C., Feb. 13-14.

National Council for Stream Improvement, Inc., annual metings, The Waldorf-Astoria, N. Y. City. Feb. 19-22.

Illinois Annual Conference on Highway Engineering, Urbana, Ill., Feb. 20-22.

American Concrete Institute, St. Francis Hotel, San Francisco, Calif., Feb. 20-24.

Industrial Waste Conference, Purdue University, La Fayette, Ind., Feb. 21-23.

American Society of Civil Engineers, convention, Rice Hotel, Houston, Texas, Feb. 21-23.

Associated General Contractors of America, annual convention, Hotel Statler, Boston, Mass., Feb. 26-March 1.

Midwest conference, Building Officials and Inspectors, Purdue University, La Fayette, Ind., Feb. 26-28.

American Concrete Pipe Association, Waldorf-Astoria Hotel, New York City, March 1-3.

American Society for Testing Materials, spring meeting. Netherland-Plaza Hotel, Cincinnati, Ohio, week of March 5.

American Road Builders Association, Schroeder Hotel, Milwaukee, Wis., March 12-14.

American Railway Engineering Association, Chicago, Ill., March 13-15.

N. J. Sewage and Industrial Wastes Association, Haddon Hall Hotel, Atlantic City, N. J., March 14-16.

Structural Engineering Conference, University of Florida, Gainesville, Fla., March 16-17.

N. Y., State Association of Highway Engineers, Rochester, N. Y., March 28-30.

N. J., Society of Professional Engineers, Haddon Hall, Atlantic City, N. J., Apr. 6-7.

Concrete Reinforcing Steel Institute, annual meeting. The Homestead, Hot Springs, Va., April 16-21.

Materials Handling Exposition and Conference, International Amphitheater, Chicago, Ill., April 30-May 4.

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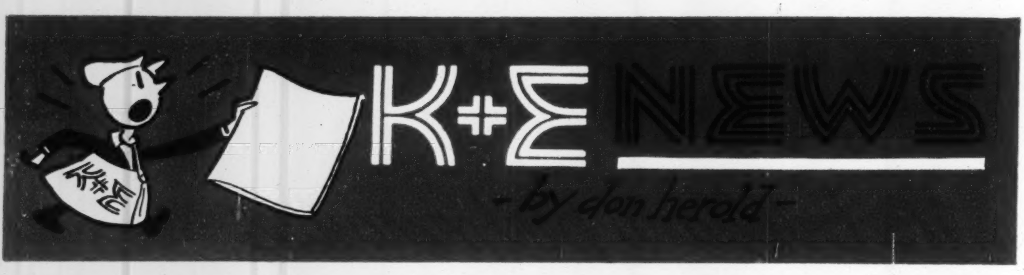

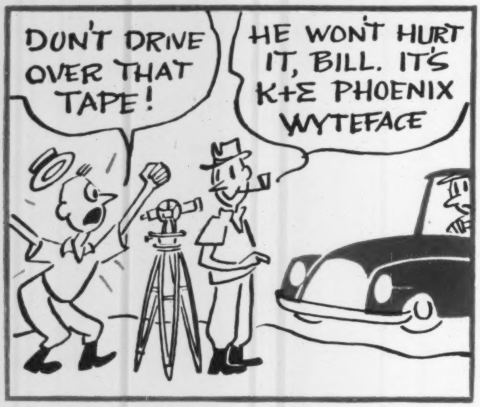
DON'T DRIVE OVER THAT TAPE!
HE WON'T HURT IT, BILL. IT'S K+E PHOENIX WYTEFACE

tape that can take it

You don't exactly buy tape to kick it around,

BUT—

—BUT you'll have to admit that most woven tapes do have to take an awful beating. For years nobody has come up with a better answer than "metallic" woven tapes—with little strands of metal woven into them.

BUT here's something far better—PHOENIX WYTEFACE† *non-metallic* Woven Tapes—a great and radical forward stride in tape development.

As one highway engineer puts it: *"it has at least three times the life of ordinary metallic tapes."*

PHOENIX WYTEFACE has been given the works in grueling field tests—in extremes of climate, in water and mud, over stones and rocks, under truck wheels, through brush and barbed wire—and has come through shining and unscathed.

The secret is, this tape is a weave of amazingly strong synthetic yarns—a scientific wartime development—completely covered by an armor-like plastic coating that is not affected by water, is not brittle, will not flake.

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Even after repeated soaking and dryings, this tape won't let you down. It has dimensional stability a lot greater than so-called "metallic" woven tapes.

And it has a HIGHER DIELECTRIC CONSTANT—which is important to power and utility companies and to anyone working near high tension circuits.

The clear black and red markings on the white background almost read themselves out loud, and the surface easily wipes clean as a whistle.

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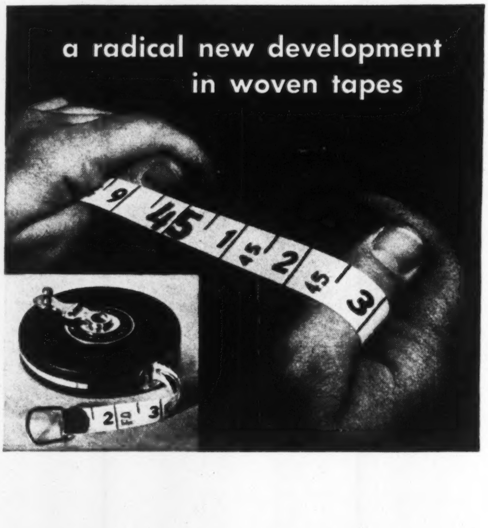

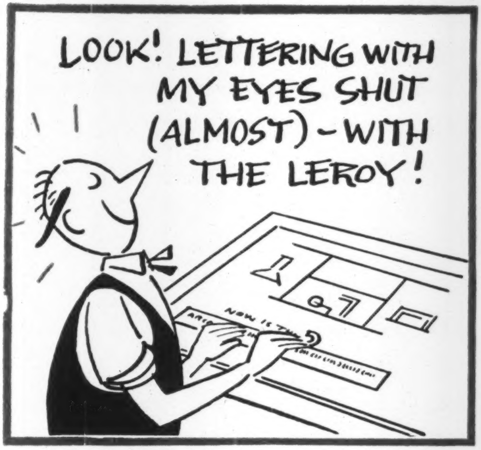
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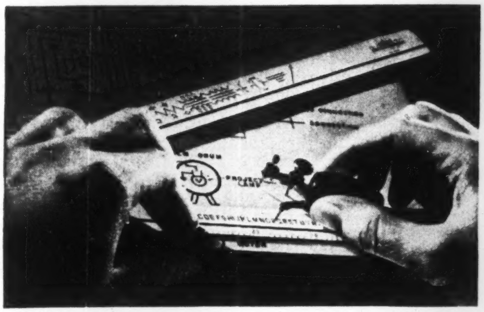
beautiful lettering with little effort

Many engineers make perfect drawings and then mess them up with "home made" lettering. A quick easy way to get lettering and symbols which look like type on your drawings is to use a LEROY* "controlled lettering" outfit, a Keuffel & Esser Co. product.



THE MAN WHO HAND LETTERED THIS LINE

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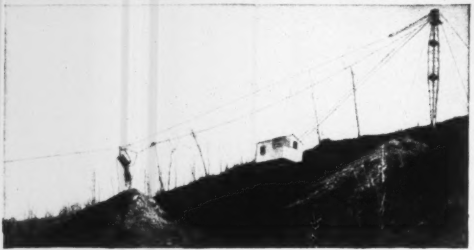

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OBITUARY

Prof. Louis B. Spinney, 81, for more than 60 years connected with Iowa State College as an outstanding student, alumnus, and teacher, died at Ames Jan. 25. He early fitted himself for teaching physics as his lifework. Having been graduated from Iowa as an engineer in 1892. He spent a year at the University of Berlin, six months at Zurick, and a year at Cornell University. His "Textbook of Physics" went through five editions, and more than 100,000 copies were sold between 1911 and 1937, the text being used by more than 150 colleges and universities. He drew plans for the Physics Hall at Iowa, considered one of the finest buildings of its kind when it was dedicated in 1922.

George F. Devereux, 62, for 11 years with Stone & Webster Co. as a civil engineer, died Jan. 24 at Lexington, Mass. He was a graduate of the University of Vermont, and a veteran of the first world war, having served with the Army Engineers in France.

Seth W. Crowell, 65, died at Amherst, N. S., Jan. 14. A civil engineering graduate of Dalhousie, he had practiced at Amherst for 18 years. He was an authority on the surveying and history of the boundary between the provinces of Nova Scotia and New Brunswick.

Clarence W. Lawrence, 47, construction engineer, Dallas, Tex., died there Jan. 24.

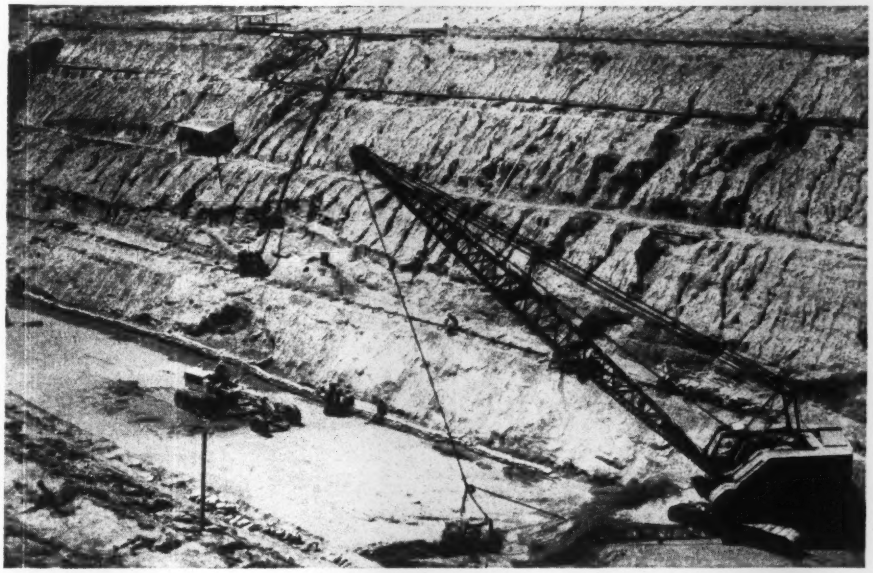
E. L. Lyons, Kentucky highway department engineer, died at Elizabethtown Jan. 23, after 35 years with the department.

John Chalmers, 84, pioneer civil engineer who surveyed the route of the old Canadian Northern Railway when it was pushed from Lake Superior to the Rocky Mountains, died recently in Vancouver, B.C. A graduate of the University of Toronto in 1898, he was structural engineer for the province of Alberta from 1905-1912, in which period the parliament buildings at Edmonton were built. In 1912-16 he worked for the city of Edmonton.

Horace G. Crocker, 84, former commissioner of public works of Quincy, Mass., died there, Jan. 15.

John Baptiste Fischer, 76, structural engineer and architect in Chicago for 50 years, died Jan. 13. He was chief designer in the Chicago office of the Boston architectural firm of Shepley, Rutan & Coolidge which designed the Harper Memorial Library.

(*Continued on page 72*)



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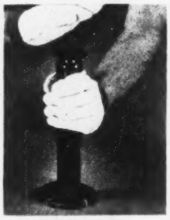

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Henry Currey Howe, 72, civil engineer and building contractor, died in Niagara Falls, Ont., Jan. 15. A construction engineer with the Hydro Electric Power Commission for many years, in later years he conducted his own contracting business in the Greater Niagara area.

Ernest O. Sweetser, 67, civil engineer and teacher, died Jan. 18 in St. Louis, Mo. He was graduated from Greeley Institute and from the University of Maine. He went to St. Louis, where he became a member of the Civil Engineering Department at Washington University. In 1948 he became professor of civil engineering there. In World War I, he served as a captain overseas.

Brig. Gen. Charles W. Kutz, 80, former engineer commissioner of the District of Columbia, died in Washington, D. C., Jan. 25. He was graduated from West Point in 1893, and in the first world war commanded the 13th Engineers. From 1906 to 1908 he was professor of practical military engineering at West Point. In 1911 he was chief engineer of the Philippine division. He was engineering commissioner of the D. C., 1914-1917 and 1918-1921.

Alan D. Drake, 60, hydraulic engineer, died Jan. 21 in Buffalo, N. Y. He also was senior engineer in the Airport division of the War Department's Chief Engineer's Office. He began with the Empire State Construction Co., which did work on the N. Y. State Barge Canal. He later worked for a Rochester hydraulic engineering firm on installation of water systems in western New York. In 1928 he joined George C. Diehl of Buffalo, where he remained till his appointment as water director of the city in 1934. In 1938 he became general superintendent for the W. W. McGee Construction Co. on an $8,000,000 intake for the Toledo, Ohio, filtration plant.

Sidney G. Martin, structural engineer, died in Chicago Dec. 14. He was a graduate of the University of Illinois, and worked for McDonald Engineering Co. He was an Army officer in the first world war.

George M. Hallstein, 50, civil engineer for the Chicago & Illinois Midland R.R., died at Springfield, Ill. Jan. 19. He was a graduate of the University of Illinois, 1927, and had worked for the railroad ever since.

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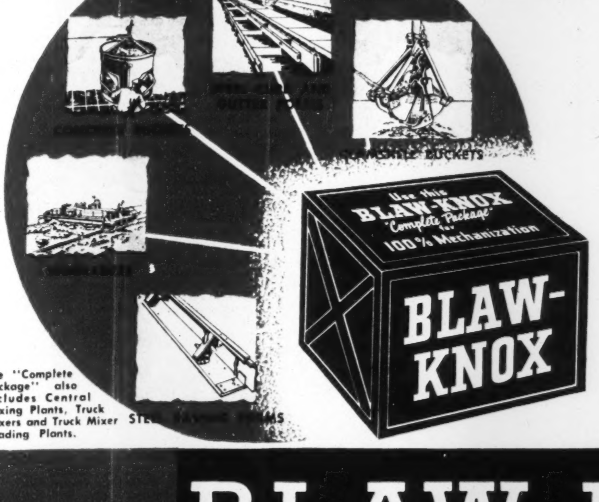

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

LOW BIDDERS—BUILDINGS

▲ **Volpe Constr. Co.**, 54 Eastern Ave., Malden, Mass. Low Bidder. **$1,057,342.** 1 and 2 story, part bsmnt., brick, steel, concrete HIGH SCHOOL, WEST BRIDGEWATER, MASS. Town of West Bridgewater, Supt. Schools, West Bridgewater, Mass. Bids Jan. 18. CD 12/28.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **New York**—B. A. About 2/14—U. S. Eng., 80 Lafayette St., New York Zone 13, emergency dam recesses at Troy Lock and Dam.

N. Y., Port Richmond—B. A. 2/15—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 1, Port Richmond intercepting sewers; Sect. 1—Port Richmond Sewage Treatment Works, Richmond Boro. Plans deposit $15. Extended date. CD 12/18.

BIDS ASKED—BUILDINGS

N. Y., Jamaica—HOSPITAL—B.A. 2/15—Dpt. Wks., Municipal Bldg., New York, Zone 7, Contr. 1, general constr.; Cont. 2, plumbing; Contr. 3, heating and ventilating; Contr. 4, electrical work for alterations and addns. to out-patient and admitting division addn. wing for specialty wards, service lines, plant addns. and tunnels, garage addn. at Queens General Hospital, Queens Boro. Plans deposit $50 Contr. 1; $30 each, Contrs 2, 3, and 4. Extended date. CD 12/21.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Wilmoth Paving Co.**, First and P Sts. S. E., Wash. D. C. Low Bidder. Bid based on prevailing Wage Act, grav. **$1,124,702**, stone, **$1,126,672**, slag **$1,127,569**; Bid not based on prevailing Wage Act grav. **$1,111,752**, stone **$1,113,722**, slag **$1,114,619.** conc. 2.036 mi. divided hy., State Rte. 95 from Viers Mill Rd. to Glenmont. Contr. M 435-6-315. Montgomery Co., MARYLAND. State Rds. Comn., Baltimore 2, Md. Bids Jan. 23. CD 1/4.

LOW BIDDERS—BUILDINGS

▲ **Navarro Corp.**, 6219 Broad St., Pittsburgh, Pa., Low Bidder **$1,325,000**, est. $1,919,000. 198 family Federal HOUSING Proj. PA5-94, MCKEESPORT, PA. Housing Auth. of McKeesport, McKeesport, Pa. Bids Dec. 18 rejected. CD 1/4, under L.B.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Dinardo, Inc.**, 331 Bouquet St., Pittsburgh, Pa. Contract Awarded. **$4,051,893** construct divided hy. consisting rein.—con. pavement 36 ft. and 34 ft. wide on each side of concrete divisor area 4 ft. wide; separated hy. consisting of c. conc. pavement 36 ft. and 24 ft. and variable in width on left lane and 25 ft. 20 ft. and variable in width on right lane and incl. 6 rein.-con. structure, c. con. pavement 4 ft. 48 ft. and variable in width on right lane and grading, drainage 44 ft. wide on left lane, incl. grading relocated railway roadbed, grading drainage 44 ft. width on both left and right lanes; c. conc. pavement 40 ft. wide. 3 concrete deck plate girder bridges and misc. constr., incl. constructing ramps and service roads with c. conc. pavement and crushed aggregate base with bit. surf. of various widths, and one plate girder bridge all within an overall length of 7,707 ft.; alterations to high level railway viaduct and construct through plate girder railway overhead structure incl. rein. con. retaining wall and roadway excav., total length 5,977 ft. a portion of Penn Lincoln Parkway and Saw Mill Rd. interchange, Allegheny Co., PENNSYLVANIA State Hy. & Bridge Auth., Harrisburg, Pa. Awarded Jan. 24. CD 1/3, under L.B.

▲ **Francis A. Canuso & Son**, 804 S. 12 St., Phila., Pa. Contract Awarded **$3,859,750** construct divided hy. consisting c. conc. pavement 24 ft. on each side of concrete and earth divisor area variable 4 to 10 ft. wide and incl. 5 rein.-con. structure; one plate girder and two I-bear bridges, grading 72 ft. and variable in width, incl. constr. on ramps and connecting roads, approx. 4,485 lin. ft. c. conc., pavement of c. conc. pavement of various widths, incl. one rein. con. structures; 1,998 lin. ft. crushed stone base with bit. surf. of various widths and two I-beam bridges having total overall length of 231 ft., total length 23,526 ft. from point in borough of W. Conshococken southeasterly along Schuylkill Expressway, Montgomery Co., PENNSYLVANIA, State Hy. & Bridge Auth., Harrisburg, Pa. Bid Dec. 27, awarded Jan. 24. CD 1/3 under L.B.

SOUTH

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Standard Dredging Co.**, 80 Broad St., New York, N. Y., Low Bidder, **$1,293,000**, dredging Ribault Basin Carrier Base near Jacksonville, MAYPORT, FLA. Dpt. Navy, Bureau Yards & Docks, Arlington, Va. Bids Jan. 23. CD 12/22.

CONTRACTS—HEAVY CONSTRUCTION

▲ **R. B. Potashnick**, Cape Girardeau, Mo. Contract Awarded. **$2,083,274**, Dockets 2.303, Parts 1-4, and 2.304, FAP FI-431 (7), Aiken Co., SOUTH CAROLINA. State Hy. Dpt., Columbia, S. C. Bids Jan. 19. CD 1/19, under LB.

CONTRACTS—BUILDINGS

Blythe & Isenhour, Brevard Ct., Charlotte, N. C. Contract Awarded. **$325,000.** CHURCH addn., CHARLOTTE, N. C. Myers Park Baptist Church, 1900 Queens Rd., Charlotte, N. C. A. Hensel Fink, 1701 Arch St., Phila., Pa., and W. W. Hook, 303½ W. 4 St., Charlotte, N. C., archts.

E. H. Bonner, Daytona Beach, Fla. Owner builds. **$300,000.** Ocean Grove SUBDIVISION, DAYTONA BEACH, FLA.

Frank Wetzel, Port Orange, Fla. Owner Builds. Approx. **$300,000.** SHOPPING CENTER, PORT ORANGE, FLA.

Consolidated Contractors, 1489 Thomas St., Memphis, Tenn. Contract Awarded. **$484,039.** HOME FOR INCURABLES, 1467 E. McLemore St., MEMPHIS, TENN. Kings Daughters and Sons of Tennessee, c/o contractor. Bids Jan. 10. CD 12/28.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Ind., Kokomo—SCHOOL—B.A. 2/26—Bd. School Trustees, O. M. Swihart, supt. Schools, High School Bldg., 2 story, Roosevelt School, $375,000. Perkins & Wills, 309 W. Jackson Blvd., Chicago, Il., superv. archts. Beiner, Hall & Curran, 607 Broadway, Gary, Ind., archts. CD 7/1/46.

CONTRACTS—HEAVY CONSTRUCTION

George W. Wheatley & Sons Constr. Co., Dupo, Ill. Contract Awarded **$202,611**, 105,000 lin. ft. 2- to 8-in. c.i. mains, transmission and distribution water lines, appurtenances, CAHOKIA, ILL. Commonfields of Cahokia Public Water Dist. of St. Clair Co., Ill., Philip G. Listeman, atty, 324 Missouri Ave., East St. Louis, Ill. Bids Jan. 4. CD 1/10, under LB.

CONTRACTS—BUILDINGS

▲ **LaCrosse Dredging Corp.**, 310 S. Michigan Ave., Chicago, Ill. Contract Awarded. Approx. **$10,000,000.** general constr. brick, concrete, steel Hutsonville POWER STATION addn., HUTSONVILLE, ILL. Central Illinois Public Service Co., Illinois Bldg., Springfield, Il. Bids Jan. 15. CD 1/4.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. Contract Awarded. **$2,000,000.** 2, 3, and 7 story, brick, concrete HOSPITAL on 35 acres, Outer Dr., DETROIT, MICH. Jewish Hospital Assoc., N. S. Shapero chn., Detroit, Mich. Bids Dec. 5. CD 11/20.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Okla., Ardmore—B.A. 2/15—City, trickling filter sewage disposal plant in southwestern sect. $95,000. Plans deposit $20. W. R. Holway, 302 E. 18 St., Tulsa, engr. CD 3/21.

Tex., Lubbock—B.A. 2/15—City, sanitary sewer lines. $60,000. W. B. Holmes, city engr. CD 12/15/47.

BIDS ASKED—BUILDINGS

† **New Mexico**—SUB-STATION—B.A. 2/15—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., constr. 13,000/16,250 kva. Albuquerque Sub-station, Rio Grand Proj., Spec. DC-3309. L. N. McClellan, ch. engr.

Neb., Nebraska City—POWER PLANT—B.A. 2/21—City, power plant addn., new generating unit, **$330,000.** Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, engrs. CD 1/11.

† **Montana**—WAREHOUSE—B.A. 2/22—Bureau Reclamation, Dpt. Interior, Canyon Ferry, furnishing, erecting 40x100 ft. metal warehouse, chain link fence for Canyon Ferry Dam and Power Plant, Missouri River Proj. Spec. 600C-54, L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr. CD 5/25/44.

† **N. M., Los Alamos**—BUILDINGS—B.A. 2/27—U. S. Atomic Energy Comn., Los Alamos, concrete buildings,, facilities. $300,000. Extended date. CD 1/5.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Cass Co., Contractors**, Ogallala, Neb. Low Bidder. **$1,609,000**, Schedule 1, 140,000 tons crushed rock or gravel blanket material and Schedule 2, 300,000 tons riprap rock for Trenton Dam, Frenchman-Cambridge Div., Missouri River Basin Proj., Spec. DS-359, NEBRASKA. Bureau Reclamation, Dpt. Interior, Trenton, Neb. Bids Jan. 18. CD 1/4.

▲ **Austin Bridge Co.**, Box 1590, Dallas, Tex. Low Bidder. **$73,109**, est. $80,000. grading, drainage structures 4.09 mi. Hy. FM 901, Grayson Co.*****Austin Road Co.** P.O. Box 1590, Dallas, Tex. **$380,136**, est $285,000. c. conc., stab. base, 2 course surf. tr. 10.618 mi. Hy. SH 24, Denton Co.*****John F. Buckner & Sons**, P. O. Box 76, Cleburne, Tex. **$60,920**, est. $76,000. grading, structures base, surf. 3.804 mi. Hy. FM 1158, Red River Co.*****H. L. Butler & Son**, Box 7112, Dallas, Tex. **$72,822**, est. $74,000. flex. base, 1 course surf. tr. 6.527 mi. Hy. SH 155, Smith Co.*****Dew Constr. Co.**, Inc., P. O. Box 64, Tyler, Tex. **$100,695**, est. $122,000. flex base, 1 course surf. tr. 7.735 mi. Hy. SH 155, Proj. F 652 (15), Smith, Henderson and Anderson Counties*****Harrison Eng. & Constr. Corp.**, 4638 Mill Creek Parkway, Kansas City, Mo. **$381,363**, est. $365,000. c. conc. 2.544 mi. Hy. U.S. 90, Proj. FI 149(7), Orange Co.*** **Southwest General Constr. Co.**, 426 Reserve Loan Life Bldg., Dallas, Tex. **$1,158,148**, est. $985,000. c. conc. roadbed tr., flex. base shoulders 8.229 mi. Hy. U.S. 67, Proj. F 800 (5), Hunt Co., TEXAS, State Hy. Comn., Austin, Tex. Bids Jan. 24. CD 1/8.

Texas Bitulithic Co., P.O. Box 5297, Dallas, Tex. Low Bidder. **$379,832**, est. $390,000, underpass and approaches on Hy. SH 550, Proj. UI 1082 (3), Tarrant Co.; **L. W. Pelphrey Co.**, Gladwater, Tex., **$250,423**, est. $240,000. Salina River relief Bridge, approach grading 1.88 mi. Hy. State 259, Proj. S 1512 (1) Gregg Co., TEXAS, State Hy. Comn., Austin, Tex. Bids Jan. 24. CD 1/8.

A. S. Koehler, Box 6235, Houston, Tex. Low Bidder. **$98,000.** sewer plant addn., BELLAIRE, TEX. City, Bellaire, Tex. Bids Jan. 17. CD 1/10.

J. & J. Constr. Co., Petroleum Bldg., Oklahoma City, Okla. Low Bidder. **$851,623.** 92 mi. Glendive-Williston 115KV transmission line. Fort Peck Proj., Spec. DC 3268 MONTANA and NORTH DAKOTA. Bureau Reclamation, Dpt. Interior, Fort Peck, Mont. Bids Jan. 23. CD 1/3.

LOW BIDDERS—BUILDINGS

▲ **San Antonio Housing Auth.**, 419 S. St. Marys St., San Antonio, Tex., rejected bids Jan. 23, 204 housing units for total 39 bldgs. for Latin-Americans, SAN ANTONIO, TEX. **$1,515,000.** CD 1/12.

Temple Independent School Dist., Temple, Tex., cancelled bids to have been opened Feb. 6, Junior-Senior HIGH SCHOOL for Negroes, TEMPLE, TEX. **$475,000.** Will re-advertise. CD 1/17.

CONTRACTS—HEAVY CONSTRUCTION

Dobson Bros. Constr. Co., 512 First Natl. Bank Bldg., Lincoln, Neb. Contract Awarded. **$78,999**, est. $79,000. sewers and sewage plant, POLK, NEB. City, Polk, Neb. Bids Jan. 19. CD 1/10.

† **Asbell Bros. Constr.**, Riverton, Wyo. Contract Awarded. **$105,000**, Schedule 1, clearing 2,510 acres Area 5 of Boysen Reservoir site, Missouri River Basin Proj., Spec. 600-C-52; **Lichty Constr. Co. and Brasel & Whitehead**, Riverton, Wyo., **$79,250**, Schedule 5, clearing 1,570 acres Area 9, WYOMING. Bureau Reclamation, Dpt. Interior, Thermopolis, Wyo. Bids Jan. 1, awarded Jan. 19. CD 1/9, under LB.

(Continued on page 77)

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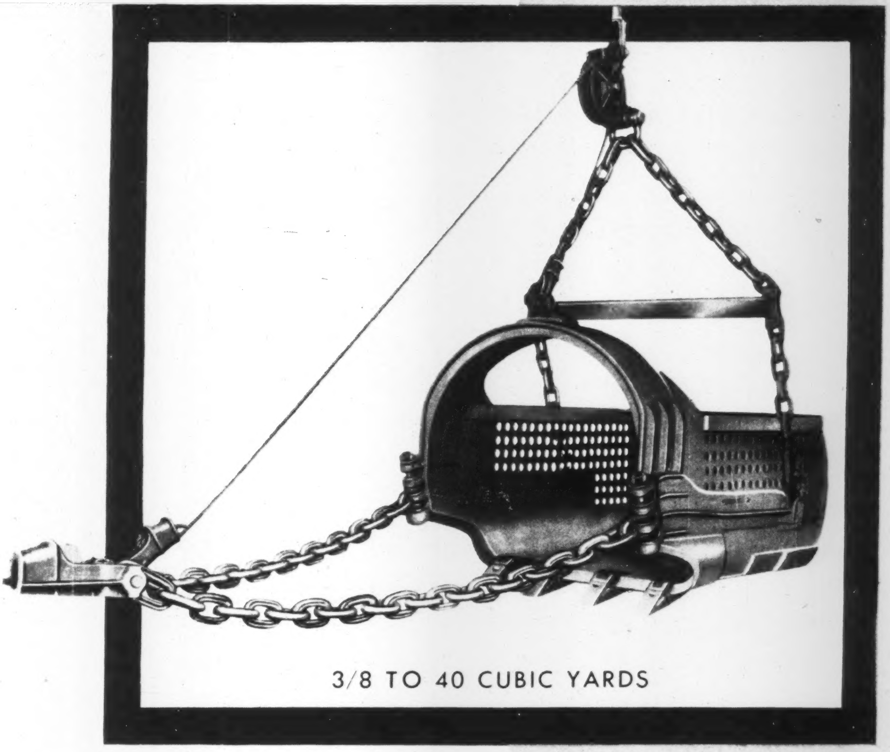

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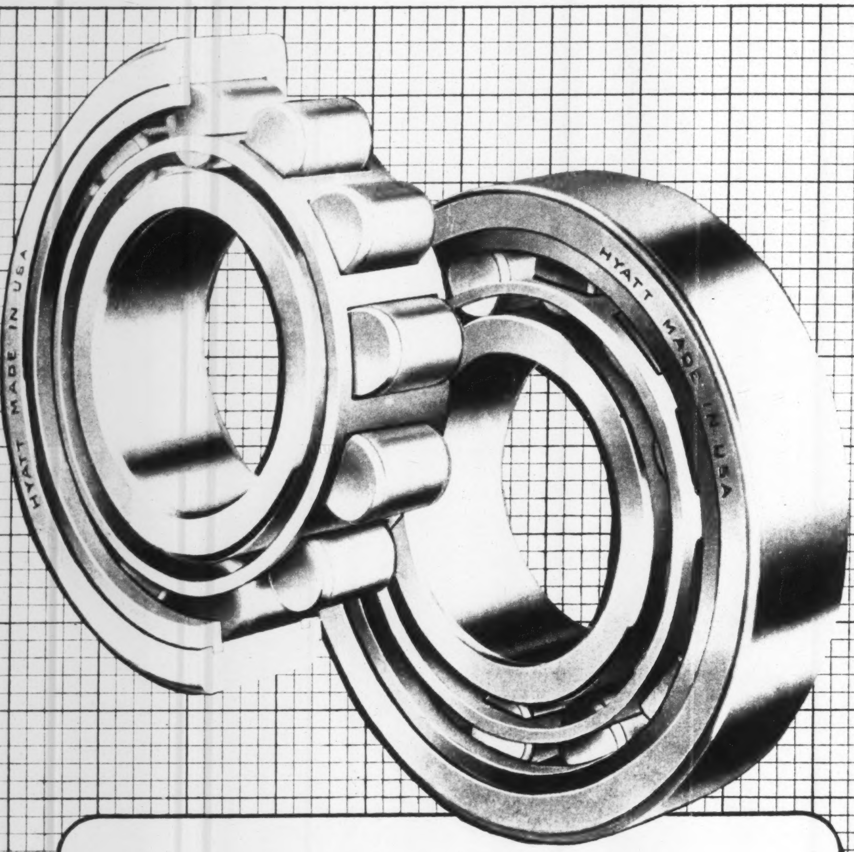

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HYATT ROLLER BEARINGS

(Continued from page 74)

CONTRACTS—BUILDINGS

O. F. Paulson Co., Iowa Theatre Bldg., Cedar Rapids, Ia. Contract Awarded. Approx. **$600,000,** GARAGE and WAREHOUSE, CEDAR RAPIDS, IA. Robert Armstrong Co., 204 2 Ave. S.E., Cedar Rapids, Ia. CD 12/21.

Martin K. Eby Constr. Co., 610 N. Main St., Wichita, Kan. Contract Awarded. **$421,933.** General constr. brick, concrete HIGH SCHOOL, PLAINVILLE, KAN., Bd. Educ., Plainville, Kan. Bids Jan. 16. CD 1/3.

J. A. Sharrack & Sons, Box 268, Marshall, Tex. Contract Awarded. **$568,940.** HOUSING, HEARNE, TEX. Hearne Housing Auth., Hearne, Tex. Bids Jan. 17, awarded Jan. 20. CD 1/24, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Idaho**—B.A. 2/15—Bureau Reclamation, Dpt. Interior, Idaho Falls, Idaho, furnishing and erecting 140,000-gallon water tank for Palisades Government Camp, Palisades Proj., at Government Town near Irwin, about 56 mi. southeast of Idaho Falls, Spec. 100C-116. CD 9/12/44, under Earthwork, Waterways.

† **Idaho**—B.A. 2/15—Bureau Reclamation, Dpt. Interior, Burley, Idaho, drilling Observation Wells 5, 6, 7, 8, 9, 10. Drainage Well 27AD823, domestic water supply wells and casing. Observation Well 1 North Side Pumping Div., Minidoka Proj. north of Milner, about 10 miles; northwest of Paul, about 8 miles; and northeast of Rupert, 8 to 24 miles. Spec. 100C-117. CD 9/12/44.

† **Washington**—B.A. 2/15—Bureau Reclamation, Dpt. Interior Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Winchester, Wash., pipes, wyes, pieces and appurtenances for Quincy Pumping Plant, Columbia Basin Proj., Spec. DS-3276. L. N. McClellan, ch. engr.

California—B.A. 2/21—State Div. Hys., Sacramento, pump house, pump sump, installing drainage facilities, near San Rafael Viaduct, Marin Co.

† **Ore., Oakridge**—HATCHERY BLDG.—B.A. 3/1—U. S. Eng., Pittock Block, Portland, hatchery, ice plant, 4 residences, etc. at Oakridge Salmon Hatchery, CIVENG 35-026-51-185. CD 7/14/50.

LOW BIDDERS—HEAVY CONSTRUCTION

† **U. S. Eng.,** 4735 E. Marginal Way, Seattle, Zone 4, Wash., cancelled bids to have been opened Jan. 23, cableway replacement at Mud Mountain Dam, Serial No. CIVENG -45-108-51-35, WASHINGTON. CD 1/10.

LOW BIDDERS—BUILDINGS

Elmer J. Freethy, 1432 Kearney St., El Cerrito, Calif., Low Bidder. **$778,924,** Garfield Junior HIGH SCHOOL GYMNASIUM, alteration, addns. to auditorium, BERKELEY, CALIF. Bd. Educ., Rose and Walnut Sts., Berkeley, Calif. CD 5/24/49.

CONTRACTS—HEAVY CONSTRUCTION

† **Smith & White,** Pier 65, Seattle, Wash., Contract Awarded, **$674,821,** constr. 76.6 mi. Columbia-Grand Coulee No. 4 230-kv transmission line, Douglas, Grant and Okanogan Counties, Spec. nv. 5451, WASHINGTON. Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore. Bids Nov. 28, awarded Nov. 30. CD 12/5, under LB.

▲† **United Concrete Pipe Corp.,** Bonita and Stewart Aves., and **Ralph A. Bell,** 901 S. Primrose Ave., Baldwin Park, Calif., Contract Awarded, **$2,175,315,** est. $2,381,844, constr. West Canal-Frenchman Hills tunnel, Station 3152 plus 34.25 to 3258 plus 00, Columbia Basin Proj., Spec. DC-3235, WASHINGTON. Bureau Reclamation Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids Dec. 13, awarded Jan. 19. CD 12/27, under LB.

CONTRACTS—BUILDINGS

Woodworth & Co., 1200 East D. St., Tacoma, Wash. Contract Awarded, **$300,000.** 3 story PARKING GARAGE, TACOMA, WASH. Baker Investment Co., Washington Bldg., Tacoma, Wash. CD 1/26.

▲ **Barrett & Hilp,** 918 Harrison St., San Francisco, Calif., Contract Awarded, **$2,000,000,** 2 story 245x200 ft., rein.-con. BUS MAINTENANCE and REPAIR CENTER, SAN FRANCISCO, CALIF. Pacific Greyhound Lines, Battery and Pine Sts., San Francisco, Calif. Bids Jan. 18, awarded Jan. 22. CD 1/4.

ALASKA

BIDS ASKED—BUILDINGS

† **Alaska, Fort Richardson**—REPAIR SHOP—B.A. 2/28—U. S. Eng. (APO 942, c/o P. M. Seattle, Wash.), Anchorage, constr. ordnance vehicle repair shop, Inv. No. S95-507-51-34. CD 11/27.

† **Alaska, Palmer**—RESIDENCES, etc.—B.A. 3/1—Bureau Reclamation, Dpt. Interior, Palmer, Alaska, residences, garages, streets and utilities at Eklutna Government Camp, Eklutna Proj., Spec. DC-3307. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.; adv. ENR 2/8.

CANADA

CONTRACTS—HEAVY CONSTRUCTION

▲ **Crown Paving & Constr. Ltd.,** 104 Ave. at 118 St., Edmonton, Alta., Contract Awarded, **$1,707,060,** Con-

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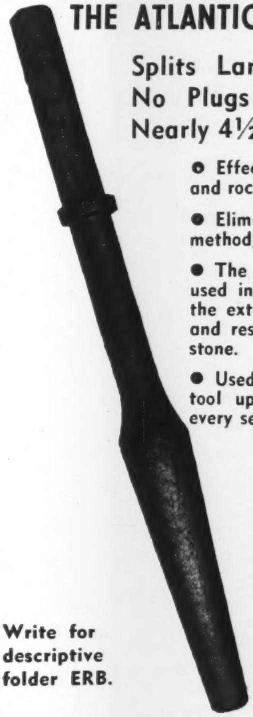

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tracts 25 and 26, 1951, paving curbs guters excavation catch basins, sewer leads, etc. EDMONTON, ATLA. City, 608 Civic Block, Edmonton, Alta. Bids Jan. 18, awarded Jan. 23. CD 1/10.

CONTRACTS—BUILDINGS

▲ **British Cement Co.**, 500 Fort St., Victoria, B. C. Own Forces. **$2,000,000.** 350 ft. long, 10 ft. 6 in. diam, STEEL KILN, BAMBERTON (near Victoria), B. C. CD 5/12/47.

John Hayman & Sons, 432 Wellington St., London, Ont. Contract Awarded, **$450,000** 2 story, bsmnt., 121x260 ft., brick, steel, cement block STORAGE Bldg., LONDON, ONT. John Labatt Ltd., Hugh Mackenzie, mgr., Simcoe St., London, Ont. CD 5/17/46.

Mousseau Constr. Co., 437 Quellette Ave., Windsor, Ont., Contract Awarded. Approx. **$665,000**, 190 bed, 6 story two wings 44x118 ft., 44x53 ft., steel masonry HOSPITAL Addn. WINDSOR, ONT. Hotel Dieu Hospital, 1300 Ouellette Ave., Windsor, Ont. Bids Jan. 18, awarded Jan. 22. CD 1/4.

AMERICANS ABROAD

CONTRACTS—HEAVY CONSTRUCTION

▲ **Cleveland Bridge & Engineering Co., Ltd.**, England. Contract Awarded. **$1,344,000.** fabrication steel work and erecting new bridge over middle harbor at The Spit, NEW SOUTH WALES, SYDNEY. Dept. Main Roads, 209 Castereagh St., Sydney, New South Wales. CD 5/26 under Foreign.

PROPOSED PROJECTS

WATER SUPPLY

Ark., Gurdon—City, imprv., exten. water sys. **$245,000.** Marion L. Crist & Assocs., Union Life Bldg., Little Rock, consult. engrs. CD 1/16.

Calif., Redwood City—City, City Hall, bond election in April, water main enlargements. **$500,000.**

▲ **Md., Baltimore**—City, Bureau Water Supply, 500 Municipal Bldg., Zone 2, 1 story, brick pumping station, Ashburton Filtration Plant, Druid Park Dr., north of Liberty Heights Ave. and south of Carlins Park. **$8,000,000.** Whitman, Requardt & Assoc., 1304 St. Paul St., Zone 2, engrs. Leon Small, 500 Municipal Bldg., Zone 2, water engr. CD 11/17.

▲ **Mo., Kansas City**—City, City Hall, Zone 6, bond election Mar. 27, water mains thru annexed area and beyond Ford plant being built at Ravena, **$650,000;** large pipe lines and feeder mains to strengthen water sys. **$500,000;** feeder mains and fire hydrants in Clay Co. annexed area, **$230,500;** imprvs. at Turkey Creek pumping station, **$315,000;** increasing capacity of basins at WW, **$800,000;** water intake structure at Missouri River, **$1,000,000;** imprvs. at Clay Co. pumping station, **$2,500,000.** CD 5/5/44.

N. C., Henderson—City, 2 WW imprvt. projects. Proj. 31-P-1034, **$158,000;** Proj. 31-P-1035, **$240,000.** Wm. C. Olsen, Raleigh Bldg. and Loan Bldg., Raleigh, consult. engr.

N. C., Mebane—Town, Mayor Wm. Van Lier, defeated bonds Dec. 5, WW. **$130,000.** CD 11/13.

N. C., Raleigh—City, WW. imprvs., Proj. 31-P-1039. **$930,000.** Pierson & Whitman, Security Bank Bldg., consult. engrs. CD 12/13.

Utah, Centerville—Town, Golden Allen, clk., Centerville, voted **$120,000** bonds enlarging water sys. and storage facilities. Win Templeton, Dooly Bldg., Salt Lake City, engr. CD 1/8.

▲ **Va., Chesterfield**—Chesterfield Co., Chesterfield, voted **$1,000,000** bonds, central water supply source; integrated water sys. to extend entire length of county; filter plant capable purifying. l. m. g. water; 750,000 gal. water storage tank on Hy. Route 663; approx. 50 mi. new mains. CD 6/9.

Wis., Two Rivers—City, filtration plant **$280,000.** J. Donohue Eng. Co., 608 N. 8 St., Sheboygan, consult. engr.

Wis., Williams Bay—Village, WW plant addn. **$140,000.**

Alta., Jasper Place—Town, water sys. Approx. **$800,000.** CD 6/1.

B. C., Burnaby—Municipality, Municipal Hall, renew and extend W W facilities, **$892,000.**

SEWERS, WASTE DISPOSAL

Ala., Gadsden—City, 2 sanitary sewers. Proj. 1-P-1024 **$365,000;** Proj. 1-P-1025, **$375,000.** Troy E. Watford, Gadsden, consult. engr.

▲ **Calif., Alameda**—City, City Hall, **$1,250,000** bond election Mar. 13, sanitary sewerage sys. to connect with East Bay Municipal Utility Dist. interceptor line. CD 2/23/45.

Calif., Martinez—Mountain View Sanitary Dist., Palm and Almond Sts., voted **$250,000** bonds sewage disposal plant. CD 12/12.

Calif., Pittsburg—City, City Hall, **$675,000** bond election in February or March, sewage treatment plant, E. L. O'Hara, City Hall, city engr. Clyde C. Kennedy, 604 Mission St., San Francisco, consult. engr. CD 11/18/49.

Calif., Redwood City—City, City Hall, **$200,000** bond election in April, major sanitary sewer trunk lines. CD 4/21/49.

Conn., Middletown—City, Bd. P. Wks., Municipal Bldg., West Side Sewage Treatment plant addn., alterations, new Imhoff tank, sewage pump station, Washington St. **$100,000.** CD 3/7/46.

Ga., Vidalia—City, sewage disposal plant. **$150,000.** Thomas & Hutton, 304 E. Bay St., Savannah, Ga., consult. engrs. CD 13/3/46.

▲ **Ill., Ottawa**—City, City Hall, sewage disposal works and sanitary sewers. **$2,000,000.** J. J. Wolfman & Assoc., Unity Bldg., Bloomington, consult. engr. CD 7/27.

Ind., Wabash—City, City Hall, sewage disposal works and interceptor sewers, **$600,000.** Boyd E. Phelps, 1000 Washington St., Michigan City, Ind., consult. engr. CD 11/26/43.

Ia., Dubuque—City, City Hall, storm sewers, **$200,000** Consoer Townsend & Assocs., 351 E. Ohio St., Chicago, 11, Ill., consult. engrs.

La., Marksville—City, voted bonds, sanitary sewer imprvs. **$150,000.** CD 1/3.

▲ **Md., Baltimore**—City, Bureau Mechanical & Electrical Service, 320 Municipal Bldg., Zone 2, incinerator, on Philadelphia Rd. at site of Incinerator No. 2. **$3,000,000.** W. Raynor Straus, 320 Municipal Bldg., Zone 2, sewerage engr. CD 11/17.

Md., Baltimore—City, Bureau Sewers, 312 Municipal Bldg., Zone 2, Patapsco River Disposal Plant, Brooklyn, Baltimore. **$100,000.** John J. Hunt, 312 Municipal Bldg., Zone 2, sewer engr. CD 1/27/44.

▲ **Md., Baltimore**—City, Bureau Sewers, 312 Municipal Bldg., Zone 2, Vail St. interceptor sewer, **$1,000,000;** Eastern low level interceptor sewer, **$500,000;** Jones Falls Western Run interceptor sewer, large main line sewer, **$1,200,000.** Whitman, Requardt & Assoc., 1304 St. Paul St., Zone 2, engrs. John J. Hunt, 312 Municipal Bldg., Zone 2, sewer engr. for each. CD 11/17.

Mich., East Lansing—City, Marble School Dist., East Lansing, sewerage sys., disposal plant, storm water sys. **$300,000,** Prof. Frank Theroux, Michigan State College, East Lansing, consult. engr.

O., Columbus—Comrs., Franklin Co., Court House, sanitary sewer for area in and around Grandview Ave. and Dublin Rd., incl. sewage pumping station. **$152,000.** Desso T. Mitchell, county sanitary engr. CD 8/17/45.

O., Groveport—Village, sanitary sewerage sys. **$150,000.** Bird & Tietzel, 2130 Arlington Ave., Columbus, consult. engrs.

Tex., College Station—City, College Station, voted bonds sewage disposal plant and treatment sys. **$110,000.**

Tex., Haltom City—Haltom City, J. C. Gunter, mayor, 3101 Haltom Rd., Fort Worth, sanitary sewer collection lines, mains, etc. **$470,000;** sewage disposal plant, **$200,000.** Tex. 41-P-1043. CD 8/24.

Tex., Mesquite—Dallas Co. Water control & Imprvt. Dist. 8, Court House, Dallas, plans by Homer A. Hunter, 6403 Bob-O-Link, Dallas, storm sewers, open drainage, **$60,000;** sanitary sewers, **$65,000.** CD 2/23/50.

▲ **Wis., Milwaukee**—City, 2 incinerator plants. **$1,427,000.** Lloyd D. Knap, City Hall, city engr. CD 12/3/43.

▲ **Alta., Jasper Place**—Town, sewerage sys. Approx. **$1,000,000.**

BRIDGES

▲ **Michigan**—Mackinac Bridge Auth., 700 Olds Tower, Lansing, five mi. bridge over Straits of Mackinac, incl. 4 traffic lanes and 3,800 ft. main span. **$76,000,000.** Dr. David B. Steinman, 117 Liberty St., New York, N. Y. H. O. Ammann, 86 9 Ave., New York, N. Y. Glenn B. Woodruff, 171 2nd St., San Francisco, Calif., consult. engrs.

Okla., Oklahoma City—City, City Hall, repairing Robinson Ave. Viaduct, **$101,000;** repairing Exchange Ave. Viaduct. **$430,000.** Harlan Chase, city engr.

Alta., Calgary—City, City Hall, subway under 4 St. west railway crossing, **$800,000,** Haddin, Davis & Brown, 513 8 Ave. W., Calgary, engrs.; new bridge to be known as 14 St. West Bridge, **$600,000;** new Elboa bridge, **$250,000;** new Cushing Bridge in East Calgary, **$150,000.** Propose to submit bylaws to rate payers in April on 3 latter projects. CD 10/3.

STREETS AND ROADS

Ill., Franklin Park—Village, Village Hall, paving Chestnut Ave. from Elm to Washington Sts. **$275,000.** Edwin Hancock, 1509 W. Jackson St., Chicago, Zone 7, consult. engr.

▲ **Ohio**—State Hy. Dpt., T. J. Kauver, dir. Hys., Columbus.

Cuyahoga Co.—imprv. State Route 3, approx. 6½ mi. from Pearl Rd. south to Middleburgh Heights, wid'n., resurf. with b. conc., incl. relocation at Baldwin Creek, Parma and Strongsville. **$1,000,000.** CD 2/23/45.

Okla., Konawa—Seminole Co., Wewoka, grade and pave county road from Mand to Konawa, **$110,000.** F. D. Brown, Shawnee, owner's staff engr.

Okla., Muskogee—City, wid'n. North York and Eastside Blvd., **$190,000.** Bryce Patrick, Muskogee, owner's staff engr. CD 10/9.

▲ **Alberta**—Dpt. P. Wks., Edmonton, Alta. (Prov. Govt.),

Edmonton—32 mile highway to connect Enclose Imperial Oil Refinery across the North Saskatchewan River from city limits, 2-lane, Approx. **$1,800,000;** 4-lane, Approx. **$3,000,000.** I. Plotkin, c/o owner, engr. CD 12/3/43.

EARTHWORK, WATERWAYS

Mich., Crystal Falls—POWER DAM—Wisconsin Michigan Power Co., M. G. Gorrow, gen. mgr., Crystal Falls, concrete hydro-electric power dam, Paint River near Horse Race Rapids, **$500,000.**

▲ **Tex., Houston**—Harris Co., Flood Control Dpt., Court House, flood control program, **$57,000,000.** H. R. Jensen, Court House, Houston, flood prevention engr.

Quebec—Gulf Pulp & Paper Co. Ltd., Clarke City, Que., 37,000 h.p. dam and water basin on Ste. Marguerite River, Seven Islands, (P.O. Sept. Iles) Charlevoix Co. Approx. **$500,000.**

▲ **Quebec**—Lower St. Lawrence Power Co., 1 St. Jean St., Rimouski, power development at Metis River near Ste. Angele de Merici, Approx. **$1,000,000.**

▲ **Quebec**—Price Brother & Co. Ltd., 65 St. Ann St., Quebec City, Que., 60,000 h.p. development on Shipshaw River, Shipshaw, Chicoutimi Co. **$10,000,000.**

AIRPORTS

▲† **Fla., Elgin Air Force Base (br. Crestview)**—ARMAMENT TEST CENTER—U. S. Eng., P.O. Box 1169, Mobile 7, Ala., giant armament test center. Approx. **$10,000,000** appropriated. CD 11/17.

O., Cleveland—BULKHEAD—City, Div. Eng. & Constr., City Hall, 601 Lakeside St., bulkhead enclosing Lakefront Airport incl. furnishing material and installing either 126,000 tons slag or 142,000 tons limestone to enclose airport. **$385,000.** CD 11/14.

▲ **O., Toledo**—AIRPORT—City, Arnold V. Fich, mgr., Toledo, airport, single 6,000 ft. runway express airport on 400-acre site **$2,566,731.** Airways Engineering, Inc., 12 12 18 St. N.W., Wash., D. C., consult. engr. CD 10/31.

▲† **Tex., Amarillo**—TRAINING SCHOOL—U. S. Eng., T. & P. Pass. Bldg., Fort Worth, aircraft technical training school, **$18,000,000;** addnl. expansion airfield and aircraft technical training school, **$17,000,000.** CD 1/2.

† **Tex., Dallas**—RIFLE RANGE BLDG.—U. S. Eng., Fort Hood, indoor rifle range bldg. ORC at Love Flying Field, Serial No. Eng 41-093-51-51.

▲ **Tex., Houston**—AIRPORT—City, Oscar Holcombe, mayor, exten. NW-SE Runway, **$250,000;** exten. North-South Runway on West side of field, **$2,000,000;** new North-South Runway on east of field, **$960,000;** new North-South Taxiway at center of field, **$200,000;** new NW-SE 7,500 ft. runway, **$1,300,000;** exten. NE-SW runway, **$140,000;** 6,200 lin. ft. addnl. taxiways at various points in field, **310,000;** 28-acre concrete-paved parking areas for planes, **$2,500,000;** extra hangars, **$500,000;** addnl. medium intensity lighting sys. for new taxiways, **$100,000;** addnl. drainage, **$500,000.** Travis Smith, P. Wks. Dir. CD 6/16.

▲† **Tex., Kingsville**—AIRPORT—Bureau Yards and Docks Annex, Navy Dpt., Arlington, Va., rein.-con. master jet specifications runways, North Field, **$1,500,000;** rein.-con. master jet specifications South Runway Field, **$1,750,000;** housing, **$350,000.**

▲ **N. S., Dartmouth**—AIRPORT—Govt. of Canada, Dpt. National Defense, NAVY, Cartier Sq., Ottawa, Ont., remodeling Shearwater Airport. **$2,300,000.**

LATIN AMERICA

Mexico, Salamanca—S. T. de P., Guerrero, 10, Mexico City, plans home colony for oil workers with credit from etroleos Mexicans, the official oil company. **$2,310,000.**

Venezuela—Shell Caribbean Petroleum Co., Caracas, Venezuela, plans 240 kilometer pipe line running from Palmarego to Shell refinery at Cardon on Paraguana peninsular, State of Zulia. **$20,000,000.**

PUBLIC BUILDINGS

▲ **Calif., Arvin**—SCHOOL—Arvin Union School Dist., Arvin, 3 school projects, **$1,000,977.**

Calif., Bakersfield—SCHOOL—Bakersfield City School Dist., 1600 K St., plans by E. L. McCoy, Hay Bldg., 64,000 sq. ft. Junior High School, Belle Terrace and P Sts. **$750,000.** CD 4/7.

Calif., Barstow—SCHOOL—Barstow Union School Dist., Barstow, 2 schools, **$787,227.**

▲ **Calif., Colton**—SCHOOL—Colton School Dist., Colton, 8 school projects at various locations. **$2,096,437.** CD 10/27.

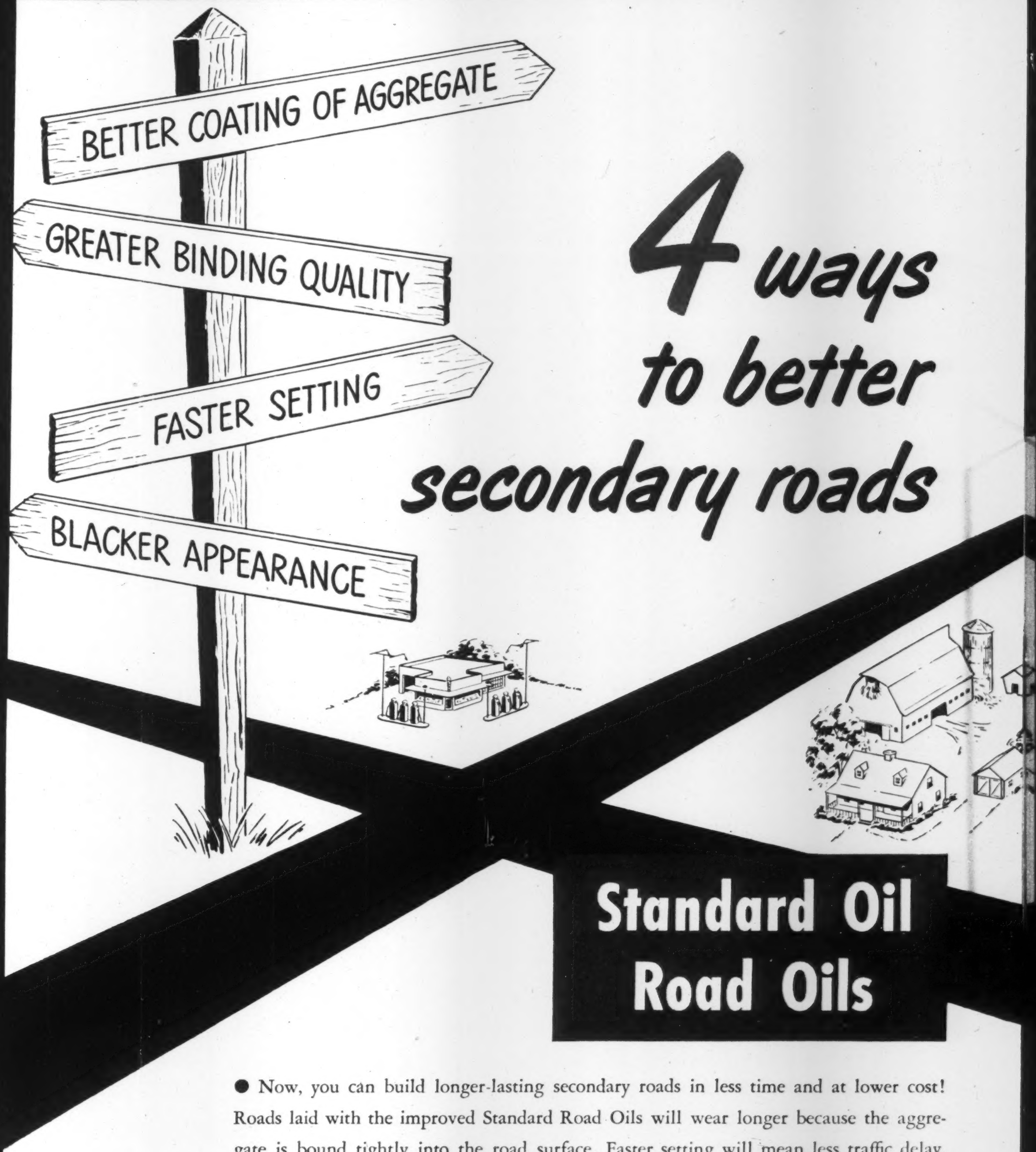
▲ **Calif., Lynwood**—SCHOOL—Lynwood Unified School Dist., 11700 School St., 12 new school projects, **$2,360,209.** CD 2/9.

Calif., Puente—SCHOOLS—Hudson School Dist., 15839 E. Rowland St., 3 school projects, **$814,456.**

Conn., East Haven—SCHOOL—Town Bd. Educ., Town Hall, plans by Harold A. Davis, 29 Whitney Ave., New Haven, 1 story, brick, limestone school, Talmadge Rd. off Short Beach Rd. **$670,000.** CD 1/16.

Conn., Glastonbury—SCHOOL—GYMNASIUM—Town Bd. Educ., F. S. Knox, supt., plans by Keith Sellars Heine, 71 Oxford St., Hartford, school and gymnasium expansion, **$807,400.** CD 10/20.

(Continued on page 81)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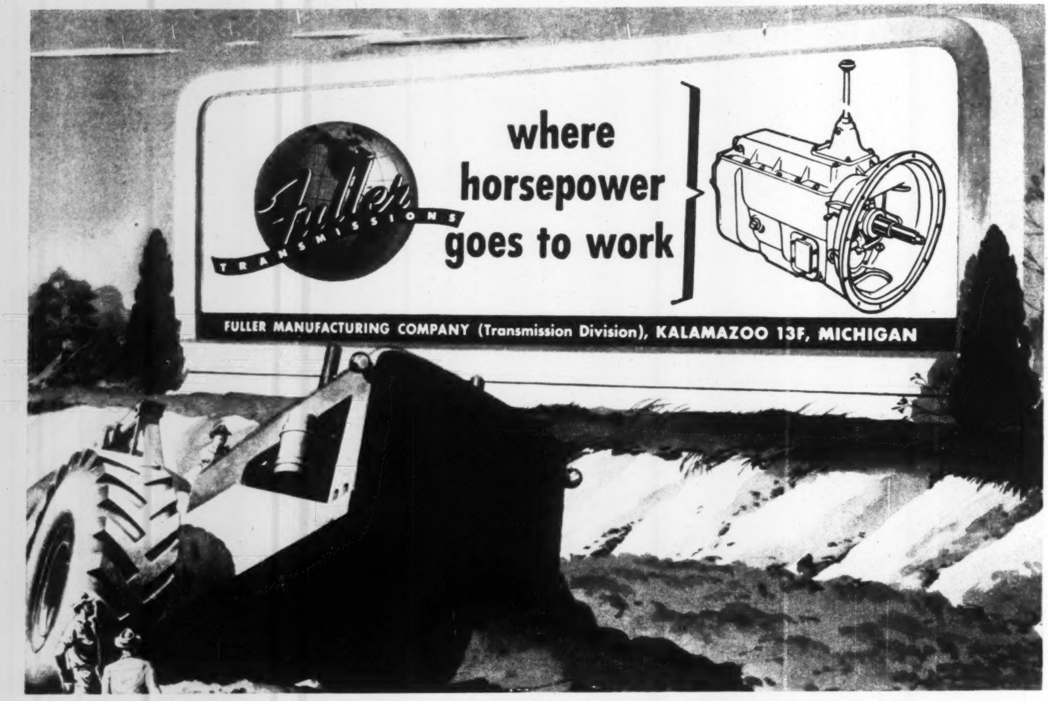
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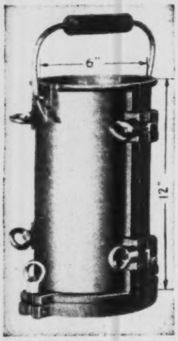

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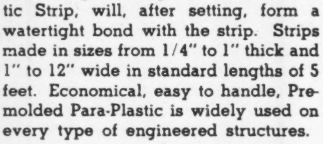

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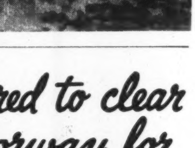


KINNEAR
ROLLING DOORS

(Continued from page 78)

Kan., Wichita—SCHOOL—Bd. Educ., plans by Hibbs & Robinson, 519 S. Broadway, James R. Meade School, **$883,000.** CD 10/4/49.

▲† **Ky., Fort Campbell**—BARRACKS—U. S. Eng., 830 W. Broadway, Louisville, eight 3 story, bsmnt., rein.-con. barracks, **$3,000,000.**

Ky., Shelbyville—HOSPITAL—Shelby Co. Fiscal Court, Shelbyville, plans by Nevin & Morgan, 1246 Starks Bldg., Louisville, county hospital, **$900,000,** E. R. Ronald & Assoc., 554 S. 3 St., Louisville, consult. engrs.

▲ **La., Minden**—HOUSING—Minden Housing Auth., Minden, 300 housing units, **$2,350,000.**

▲ **Md., Sykesville**—MEDICAL and SURGICAL—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, plans by Henry Powell Hopkins, 10 E. Mulberry St., Baltimore, Zone 2, masonry medical and surgical bldg., Springfield State Hospital. **$1,250,000.** Garrett O. Billmire, 506 Park Ave., Baltimore, Zone 1, ch. engr. CD 12/7.

▲ **Mass., Amherst**—ENGINEERING, etc.—State, University of Mass., R. D. Hawley, treas., engineering bldg., equip., **$700,000;** public health bldg. for University of Mass., **$500,000.** CD 2/10/50.

▲ **Mass., Boston**—MEDICAL and SURGICAL BLDG.—State, Dpt. Mental Health, 15 Ashburton Pl. medical and surgical bldg. **$1,800,000.** CD 6/30/49.

Mass., Hamilton—SCHOOL—Town, School Bldg. Comn., 14 Union St., brick, steel, concrete school. **$600,000.**

Mich., Detroit—PARKING GARAGE—City, Carl D. Warner, dir. P. Wks., Foster K. Winters, pres., Municipal Parking Autn., concrete parking garage, 2 levels under Circus Park, ramps at Bagley Ave. and Washington Blvd., incl. bomb shelter. **$700,000.** George R. Thompson, City Hall, Detroit, city engr. CD 4/2/46.

▲ **Mich., Detroit**—COLLEGE—Wayne University, 4841 Case Ave., plans by Smith-Hinchman & Grylls, 800 Marquette Bldg., 8 story, T shaped medical science unit, laboratories at College of Medicine, St. Antoine St. **$3,000,000.** CD 3/30/43.

▲ **Miss., Greenville**—PLANT—City, plans by Wm. E. Mallett & Assoc., 416½ E. Amite St., Jackson, mfg. plant for Alexander Smith & Sons Carpet Co., Saw Mill River Rd., Yonkers, N. Y. **$4,750,000.** CD 1/22.

▲ **Mo., Kansas City**—HOUSING—Kansas Housing Auth., c/o Forrest D. Byars, chn., 340 housing units (negro) incl. parking and playground area, 12 to 14 and Woodland to Pasco Sts., **$2,890,000;** 410 housing units (white) Lydia to Campbell and 3 to 5 Sts., **$3,485,000.**

Neb., North Platte—SCHOOL—Bd. Educ., North Platte, **$886,000** bond election Feb. 15, schools, **$886,000.**

▲ **Neb., Omaha**—HOUSING—Omaha Housing Auth., 5529 S. 30 St., project abandoned, housing, 42 and F Sts. **$3,500,000.** CD 1/15.

N. J., Bridgeton—SCHOOL—Bridgeton Bd. Educ., Bridgeton, plans by Churchill Fulmer Assocs., 19 W. 44 St., New York, N. Y., Junior High School. **$1,000,000.**

▲ **N. J., Harrison**—HOUSING—Harrison Housing Auth., 788 Harrison Ave., first section, Second Ward, Kingsland Ave., four 3 story brick 72 unit apartments, 2nd section Fourth Ward, on Second St. three 3 story, brick apartments. **$1,600,000.**

O., Boardman—SCHOOL—Mahoning Co. Bd. Educ., Court House, Youngstown, plans by Chester V. Long, 5980 Glenwood Ave. Ext., Boardman High School addn. **$400,000.** Voted $1,000,000 bonds Nov. 7. CD 8/23.

O., Marion—POWER PLANT—State Dpt. P. Welfare, Columbus, plans by Miller & Voinovich, Swetland Bldg., Cleveland, 1 tall story and partial 2nd story, 80x132 ft. steel, brick, concrete power plant for proposed new reformatory. **$700,000.**

O., Middleburgh Heights—SCHOOL—Bd. Educ., Eastland Rd., Berea, plans by Mellenbrook, Foley & Scott, 26 Front St., Berea, Junior High School and high school addn. **$650,000.**

O., St. Marys—HOSPITAL—Jackson, German, Noble and St. Marys Twps. Joint Twp. Dist. Hospital Bd. Trustees, St. Marys, hospital, **$750,000.**

Ore., Coos Bay—GYMNASIUM—School Dist. 9C, Coos Bay, plans by Marion Stokes, Hughes Bldg., Portland, gymnasium and addns. doubling size of high school. **$850,000.**

▲ **Pa., Penn Twp.**—SCHOOLS—Bd. Educ., Penn Twp., Box 33, Wilkinsburg, plans by Joseph W. Hoover, 316 Penn Ave., Pittsburgh, 1 and 2 story, 60x160 ft., 50x90 ft. brick, tile Hebron School, **$500,000;** Senior High School, **$2,000,000,** near Wilkinsburg. CD 2/27/46.

S. C., Sumter—HIGH SCHOOL—Sumter School Dist. 17, Sumter, plans by James & Durant, Sumter High School, Proj. 38-P-1010. **$598,000.**

Tex., Alamo—HOUSING—Alamo Housing Auth., Alamo, 30 unit low-rental housing, **$300,000;** 100-unit low rental housing, **$820,000.** Edwin W. Byers, Alamo, consult. engr. CD 1/19.

▲ **Tex., Angleton**—BUILDINGS—Texas Prison Bd., State Bldg., Austin, repairs, imprvs. to existing bldgs. Angleton-Sugarland, **$400,000;** addnl. cell blocks, near here. **$750,000.**

Tex., DeLeon—HOUSING—DeLeon Housing Auth., DeLeon, 80 unit low cost housing. **$645,000.** Boese & Harkrider, 1127 T. & P. Passenger Bldg., Fort Worth, consult. engrs. CD 3/30.

Tex., Huntsville—BUILDINGS—Texas Prison Bd., State Bldg., Austin, repairs, remodeling, imprv. buildings. **$510,000.**

▲ **Tex., Sugarland**—CELL BLOCKS—Texas Prison Bd., State Bldg., Austin, addnl. cell blocks. **$1,000,000.**

▲ **Utah, Salt Lake City**—SCHOOLS—Bd. Educ., 440 E. 1st South St., plans by Fetzer & Fetzer, Zions Saving Bank Bldg., 14-room school, 8th East St. and 2800 South St., **$500,000;** plans by Scott & Beecher, Dooly Bldg., 20-room school, California Ave. near Redwood Rd., **$700,000;** plans by Ware & McClanahan, Utah Saving & Trust Bldg., 14-room school, 17th South and Conner St., **$500,000.** Howard Barker, 440 E. 1st South St., owner's archt.

▲ **Ont., Toronto** — OFFICE — Hydro-Electric Power Comn. of Ontario, 620 University Ave., plans by Sproat & Rolph, 83 Cumberland St., 5 story, 110x230 ft., steel, office for engineering dpt., Murray St. **$3,000,000-$4,000,000.**

Que., Montreal—CIVIC OFFICES—Municipality, plans by D. Beaupre, City Hall, remodeling former Place Viger Hotel for use as civic offices, **$900,000.**

COMMERCIAL BUILDINGS

▲ **Ala., Birmingham**—CHURCH—Central Park Baptist Church, 1900 43 St., church, **$1,000,000.**

▲ **Calif., Los Angeles**—OFFICE, etc.—American National Red Cross, 1220 S. Vermont St., plans by Austin, Field & Fry, 2311 W. 3 St., 1 story, rein.-con. office and blood bank, **$1,000,000.**

Conn., Hartford—MEDICAL SOCIETY—Hartford Medical Society, Prospect St., 2 story medical society bldg. with amphitheater, library facilities Scarborough St. and Albany Ave., **$500,000.**

▲ **Ill., Chicago** — PROFESSIONAL SERVICES, etc. — Michael Reese Hospital 29 and Ellis Ave., Chicago, Zone 16, 120-bed pavilion and two structures professional services bldg., **$3,585,000.**

La., Alexandria—DEPARTMENT STORE—Sears, Roebuck & Co., c/o Chas. T. Roberts, archt., Guaranty Bank Bldg., department store, **$500,000.**

Md., Baltimore—HOUSING—Welsh Homes, Inc., 11 E. Fayette St., Zone 2, Lawrence Menefee, 347 N. Charles St., 56 brick row type houses, 1500 block Northbourne Rd., **$504,000.**

Mass., Concord—SCHOOL—Archdiocese of Boston, Lake St., Brighton, parochial high school, Pratt Estate, Main St., **$500,000.**

Minn., Minneapolis—SHOPPING CENTER—D. Shanedling, 404 Minnesota Federal Bldg., plans by G. Becker, 1645 Hennepin Ave., 1 story, 360x604 ft., irregular shape shopping center, incl. 23 stores, Portland Ave. and Belt Line (Bloomington), **$500,000.**

▲ **N. Y., Brooklyn**—APARTMENT—B. L. Bldg. Corp., 3036 Ave. U, Zone 29, plans by Julius Fishkind, 161-19 Jamaica Ave., Jamaica, 6 story, 48 apartment units, 2209 Knapp St., **$384,000;** 6 story, 67 apartment units, 2229 Knapp St., **$528,000;** 6 story, 48 apartment units, 2212 Plumb First St., **$384,000.**

N. Y., Brooklyn—APARTMENT—Roann Apartments, Inc., 6002-24 16 Ave., Zone 4, plans by Seelig & Finkelstein, 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, 1865 Ocean Ave., **$952,040.**

▲ **N. Y., Flushing**—APARTMENT—Redlark Realty Corp., c/o Philip Birnbaum, archt., 12 E. 48 St., New York, Zone 17, 8 six story, 70x158 ft. apartments for 530 families, 150 St. between 71 Ave. and 72 Rd., **$4,000,000.**

N. Y., Forest Hills—APARTMENT—M. Kalt, c/o Julius Fishkind, archt., 161-19 Jamaica Ave., Jamaica, 6 story, 68x130 ft. apartment, 67 Ave. and Clyde St., **$500,000.**

▲ **N. Y., Little Neck**—HOUSES—Pracon Realty Corp., c/o Benjamin Branstein, archt., 163-18 Jamaica Ave., Jamaica, 118 one-family houses in area bounded by 251 St., 58 Ave., Marathon Parkway and 60 Ave., **$1,059,780.**

▲ **N. Y., Long Island City**—MANUFACTURING STORE, etc.—Queens St. Realty Corp., c/o Morris Jachs, archt., 40 Exchange Pl., New York, Zone 5, 6 story, 150x200 ft. mfg. store and office, Jackson Ave. between Queens and Orchard Sts., **$1,000,000.**

▲ **O., Lakewood**—SHOPPING CENTER—Mr. & Mrs. E. C. Box, 9007 Detroit Ave., Cleveland, plans by W. S. Ferguson, 1910 E. 26 St., Cleveland, 1 story, 140x548 ft. with partial 2nd story, 60x200 ft., steel and masonry shopping center W. 131 St. and Lorain Ave. **$1,300,000.**

▲ **Okla., Oklahoma City**—STORE—Sears, Roebuck & Co., W. Arthington and S. Homas Sts., Chicago, Ill., store, N.W. 23 and Pennsylvania Sts., **$1,500,000.**

Okla., Tulsa—COMMERCIAL—Pythian Development Assn., 5 and Boulder Ave., enlarge 3 story commercial bldg. to 15 story bldg. **$800,000.**

S. C., Sumter—HOSPITAL—Toumey Hospital, Sumter, S. C., hospital addn., **$500,000.**

Tenn., Tullahoma—RESIDENTIAL DEVELOPMENT—John W. Horton, Tullahoma, residential development. **$500,000.**

Tex., Dallas—DWELLINGS—Fred L. Galbraith, 142 Casa Linda Plaza, plans by Milam & Roper, 1508 Buckner Blvd., 3 brick dwellings, concrete pier and grade beam fdn., central heating, **$775,000.**

▲ **Tex., Fort Worth** — SUPERMARKET — Wyatt Food Stores, 705 Young St., Dallas, 30,000 sq. ft. masonry supermarket, air-conditioning, in Fair Oaks Shopping Village, **$400,000;** food store, **$300,000;** food store and market, **$350,000.**

▲ **Tex., Houston**—SHOPPING CENTER—Leo F. Corrigan, Mercantile Bank Bldg., Dallas, plans by D. P. Walling, 401 Maple St., shopping center, N. Main St., **$1,000,000.**

Tex., Houston—APARTMENT-HOTEL—G. M. De George Estate, Ambassador Hotel, plans by H. King, 4615 Fannin St., 4 story 90 unit masonry Negro Apartment-Hotel. **$500,000.**

Tex., Pasadena—SHOPPING CENTER—Leo F. Corrigan, Mercantile Bank Bldg., Dallas, plans by D. P. Walling, 401 Maple St., Houston, addnl. unit to shopping center, **$500,000.**

▲ **W. Va., Phillippi**—HOSPITAL—Broaddus Hospital Assn., Philippi, plans by Tucker & Silling, Masonic Temple, Charleston, W. Va., hospital, **$1,300,000.** CD 9/25/47.

▲ **Alta., Edmonton**—OFFICE—Alberta Govt. Telephones, Edmonton, plans by Rule Wynn & Rule, 11422 Jasper Ave., first section 8 story (ultimately 14 story), 100x100 ft., two-level bsmnt. office, 97 Ave. west of 107 St. Total Approx. **$1,125,000.**

▲ **Ont., London**—APARTMENT BLOCKS—Realty Development Co. Ltd., 105 Grand Ave., 12 or 13, sixteen units each concrete block, brick veneer apartment blocks. Approx. **$950,000-$1,050,000.**

Que., Montreal — SYNAGOGUE — Shearith Israel Synagogue, Maplewood Ave., plans by W. J. Roseberg, 2052 W. Ste. Catherine St., 100x100 ft., concrete, brick, granite synagogue, **$500,000.** CD 4/25/46.

INDUSTRIAL BUILDINGS

Calif., Palmdale—PREFLIGHT, etc.—Lockheed Aircraft Corp., 2555 N. Hollywood Way, Burbank, preflight bldg. storage and maintenance bldgs., **$500,000.** Parkinson, Powellson, Briney, Bernard & Woodford, 410 N. LaBrea St., Los Angeles, consult. engrs.

▲ **Ga., Valdosta** — GENERATING PLANT — Georgia Power Co., Marietta St. N.W., Atlanta, generating plant, **$4,500,000.**

▲ **Ind., Crawfordsville**—FACTORY, etc.—Raybestos-Manhattan Inc., 61 Willett St., Passaic, N. J., factory, warehouse and offices, 25 acre site, State Rd. 32 and Pennsylvania Ry., **$1,000,000.**

▲ **Mass., East Longmeadow**—FACTORY—American Saw & Mfg. Co., 67 Boylston St., Springfield, brick, steel mill type factory. **$1,750,000.**

Neb., Omaha—PACKING PLANT—Roth Packing Co., Waterloo, Ia., will not construct meat packing plant. **$900,000.** Project abandoned. CD 12/13.

▲ **Neb., Omaha**—PLANT—U.S. Cold Storage Corp., 2055 W. Pershing St., Chicago, Ill., cold storage plant, **$1,500,000.** J. C. Irwin, c/o owner, ch. engr.

N. Y., New York—WAREHOUSE—National Gerard Corp., c/o Peter W. Bruder, archt., 15 Park Row, New York, Zone 7, 2 story warehouse, Gerard Ave. and 150 St., **$350,000.**

▲ **O., Columbus**—RESEARCH—Battelle Memorial Institute, Dr. Clyde Williams, chn. Bd., 505 King Ave., research laboratory, King Ave. and Tisdale St. **$1,000,000.**

▲ **Okla., Guymon**—COMPRESSOR STATIONS—Cities Service Gas Co., First National Bldg., Oklahoma City, 13,800 addnl. hp at compressor stations on gas line from Guymon to Kansas City, Texas Co. **$4,200,000.**

▲ **Okla., Sulphur**—POWER PLANT—Oklahoma Gas & Electric Co., 321 N. Harvey St., Oklahoma City, new 66,000 kw steam turbine power plant **$8,750,000.** Frank Partridge, 319 N. Harvey St., Oklahoma City, Zone 2, engr.

S. C., Enoree—MILL—Riverdale Mills, Enoree, mill addn. Approx. **$500,000.**

▲ **Tex., Daingerfield**—PLANT—Lone Star Steel Co., 4152 Mockingbird Lane, Dallas, steel production plant, incl. 4 open-hearth furnaces, **$14,400,000;** soaking pits and rolling mill, **$21,750,000;** finishing department shops, **$25,000,000;** gas sys. **$450,000;** streets and roads and area paving, **$600,000;** sewerage sys. **$650,000;** WW sys., **$550,000;** light plant and lighting sys. —outside, **$750,000;** drainage sys. **$390,000.** Total overall cost $73,425,000. CD 1/12/49.

▲ **Tex., Sherman**—PLANT—Line Material Co., Sherman, 30,000 sq. ft. plant, Hy. 82 and Country Club Rd., **$750,000;** warehouse, **$100,000;** electric power plant, **$150,000.**

▲ **Wash., Tacoma**—PLANT—Pacific Oerlikon Co. Tideflats, Tacoma, plant, **$1,000,000.**

▲ **N. S., Sydney**—PLANT—Dominion Coal Co. Ltd., 483 George St., Sydney, coal washing plant. Approx. **$1,000,000.**

▲ **Ont., Cobalt**—SMELTER—Cobalt Chemical & Refinery Co., Ltd., 222 Simcoe St., Toronto, smelter on Montreal River, **$1,000,000.** Provincial Eng. Co. Ltd., 674 Ferguson St., Niagara Falls, engrs. CD 11/3.

▲ **Ont., Scarborough** — ELECTRONIC PLANT — Canadian Arsenals Ltd., Leaside, Ont., electronic plant, on 12-acre site, Warden Ave. **$2,000,000.**

▲ **Que., Cape de la Madeleine**—PLANT—Norton Co. Ltd., Worcester, Mass., U. S. A., plant extension. Approx. **$2,000,000.**

UNCLASSIFIED

Oklahoma—RURAL DISTRIBUTION LINES—Choctaw Electric Co-operative, Antlers, 311 mi. rural distr. lines, Pushmataha Co. **$915,000.** C. H. Guernsey & Co., 2701 N. Oklahoma St., Oklahoma City, Zone 5, consult. engrs.

▲ **Tex., Houston**—OPEN TYPE WHARF—Port Comn., Port of Houston, c/o Wharf 13, Houston, open type wharf No. 8. **$1,250,000.** Greer & McClelland, 2649 N. Main St., consult. engrs. CD 8/28/47.

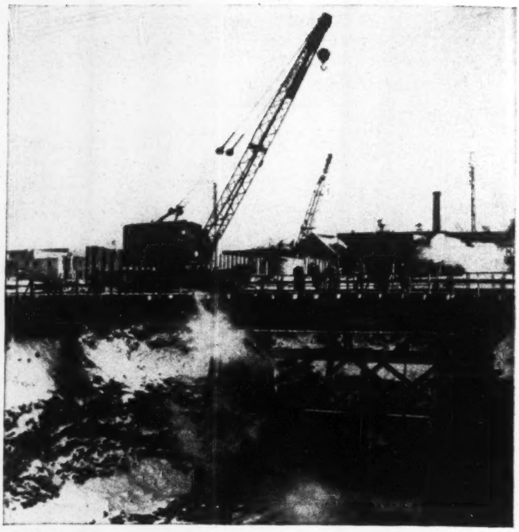
PREVIEWS

from the

CROSBY CLIPPER

CROSBY CLIPPER

These are excerpts from stories in the current issue of American Hoist & Derrick Company's house magazine, the American Crosby Clipper. If your business involves the use of hoists, derricks, locomotive cranes, revolver cranes, Crosby Clips or other equipment in our line, why not let us put your name on the mailing list. Use coupon at right, to start with the current issue.



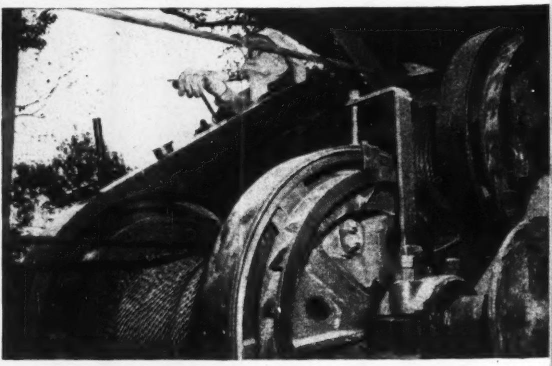
New subway for Montreal. Winter or no winter, work had to be rushed by Canadian National Railways on three spans for new St. Remi subway. *Clipper* story tells how an American Locomotive Crane—one of the great American line that outsells all others throughout the world—completed this work in record time. Photo shows falsework for underpass.

◀ **How to pour a floor a day.** Imagine twelve 3-yard trucks, starting at 6 a.m., hauling concrete at top speed for eleven continuous hours . . . and the problem of elevating all this for pouring, in a four-story warehouse. You can read in the *Clipper* how the job was done by Lindsey-Davis Co., Chattanooga, using American Portable Material Elevators. These portable, self-erecting elevators are making hand-built wooden towers a thing of the past.

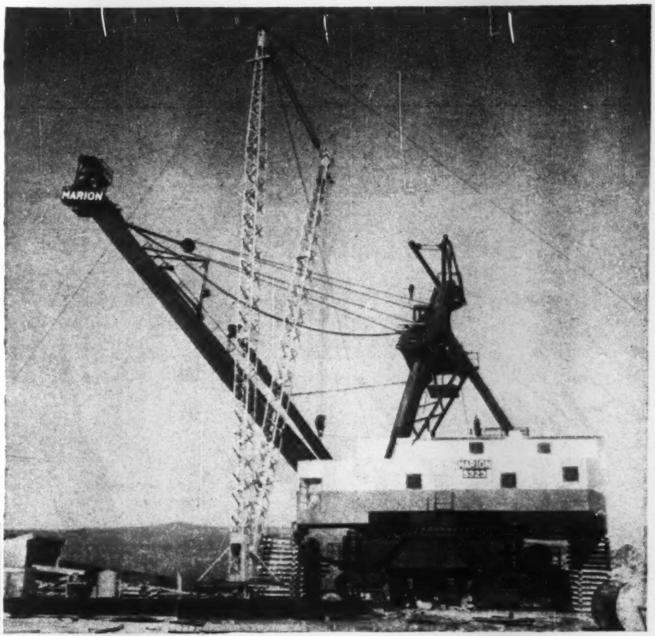
High speed hoisting on five new veterans hospitals. ▶ As the nation spends multiple billions on construction, American Hoists lift more of the materials than any other equipment of any type.

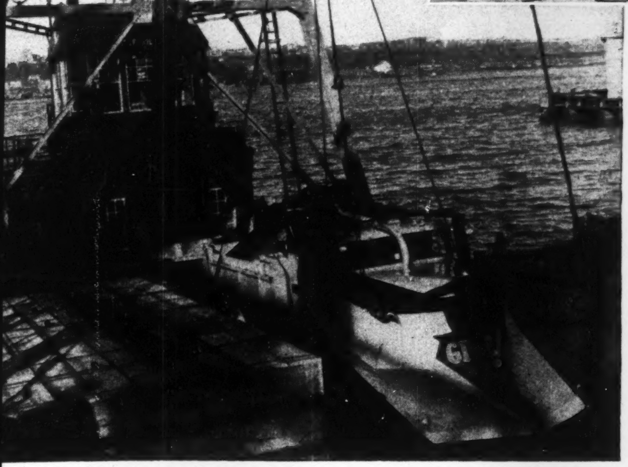
Typical story is that of Del E. Webb Construction Co., Phoenix, building five new Veterans Hospitals in western U.S.

Photo at right shows close-up of compact, powerful American construction hoist on a Del E. Webb job.



Helpless giant. The fabulous shovel seen at right can bite off 25 tons of dirt, or 12 tons of coal, with one dipperful. But on arrival at the Ozark-Philpott mine in Arkansas, it couldn't lift a single chunk until somebody assembled it. So engineers did what they usually do . . . called for a big, trustworthy American Guy Derrick, and a 3-drum American Hoist. Up went the shovel, completely assembled on the site. American derricks outnumber and outperform all others—for construction, oil fields, barges, materials handling, and wherever there's a lifting or placement job to do. Read the whole story in the *Clipper*.





A matter of life or death. Not much heart-tug in a snowplow, you might think. But this one was different. Way up in the Italian Appennines, the mayor of tiny Capracotta wrote to J. V. Kenny, mayor of Jersey City: "Our lives depend on a snow plow, but we cannot afford one. Doctors cannot reach the ailing; priests the dying." This new plow, a gift of New Jerseyites to Capracottians, here starts its journey via an American Barge Derrick. The derrick could handle far bigger loads, but certainly none more pleasant.

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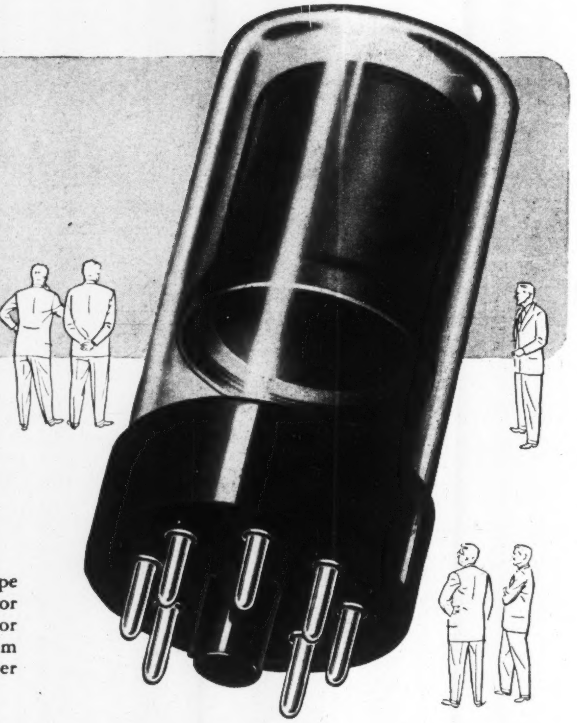

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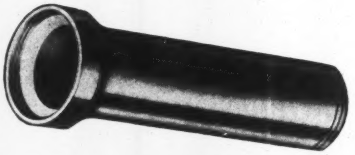

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C-151-9

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
March Materials, and Labor Prices will appear in March 8, 1951 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash. dis. not deducted			SAND AND GRAVEL Per ton. carload lots			CRUSHED STONE Per ton. carload lots		CRUSHED SLAG Per ton. carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.63	$3.35	3.10	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.186	$0.186	$11.00
Baltimore	3.64	3.34	3.30	2.50a	2.50a	2.00a	2.70a	2.80a	2.60a	2.55a	.17	.17a	10.80
Birmingham	3.00	2.68	3.80g	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	7.85
Boston	3.92	3.61	3.55	2.50a	2.50a	2.50a	1.60a	1.70a	....	....	.206	.22a	11.50h
Chicago	3.29	2.99	3.94	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.50
Cincinnati	3.46	3.18	3.16	2.15‡c	2.40‡c	2.05‡c	2.00‡h	2.00‡h	1.55	1.55	.20	.215a	10.95f
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.65	3.65a	3.65a	2.85‡	2.85‡	....	.23	13.00g
Dallas	2.95	2.65	2.70	2.15	2.15	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.89	3.64	3.89	1.85	2.00	1.15	....	....	....	....	.22	.255a	10.00
Detroit	3.25f	2.98	3.04	4.00‡b	4.00‡b	3.50‡b	4.00‡	4.00‡	4.00‡	4.00‡	.19	.20a	10.50f
Kansas City	3.30	3.03	3.15	1.90‡	1.90‡	1.50‡a	1.95‡a	1.95‡a	....	....	.24ag	.25e	10.95‡b
Los Angeles	4.00a	3.52a	4.72	2.10a	2.20a	1.95a	2.08a	2.08a	....	....	.11f	.225	10.43lkm
Minneapolis	3.68cd	3.37cd	3.33	2.40ag	2.40ag	1.45ag	2.50‡ag	2.50‡ag	....	....	.23ik	....	11.75fi
Montreal	2.66ac	2.51ac	....	2.50	2.50	1.90i	.85ij	1.10ij	....	....	.22	.20a	9.05ek
New Orleans	3.15e	2.80e	3.00	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.74	3.44	3.32	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.40an
Philadelphia	3.25/3.55‡	2.97/3.27	3.25 ‡	2.55‡	2.65‡	2.05‡	2.00‡	2.05‡	1.75	1.65	.22/.25	....	11.15
Pittsburgh	3.32	3.04	....	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	11.00
St. Louis	3.28/3.38b	2.94/3.10b	4.20	3.00am	2.90am	2.30/2.70am	1.70j	1.70j	1.25	1.25	.215	.27ci	10.40
San Francisco	3.39	2.99	....	1.86	1.86	1.96	1.96	....	....	....	....	.26c	10.75c
Seattle	3.75a	3.25a	3.85	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	10.95j

‡ Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: a Subj. to 10¢ dis. b Less 2% for cash. c CL price dealers' comm. not incl d Dealers sell only LCL. e Plus switching charges. f Paying up to $3.80 for cement brought in from outside sources. g LCL.
SAND, GRAVEL, STONE & SLAG: a Truck lots. b Per cu. yd. c 5 tons or more. e ½". f Pea gravel. g Less 5% for cash. h Less than 5 tons. i Sales tax incl. j F.o.b. quarry. k Barge lots asd. l F.o.b. scow Hudson river. m Less 2% for cash. n F.o.b. cars.

CONCRETE BLOCK: a Cinder. b Waylite. c Haydite. d Celocrete. e 5½ x 8 x 12 in. f 8 x 4 x 16. g F.o.b. truck at job. i Less 2% for cash. j Less 1% for cash. k 8x8x18.
READY MIXED CONCRETE: a 5 cu. yds. or over del. Man. b 25 cu. yds. or more. c 10–100 cu. brackets. e 2,000 lb. concr. f 2500 lb. comp. g Aver. haul 7–9 mi. zone. h Less 50¢ for cash. i 5% off for cash. j 2% off for cash. k Sales tax included. l 1:2½:4. m F.o.b. yard. n Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month: on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.60†	Buffington, Ind.	$2.55†	Steelton, Minn	$2.65†	Muskegon, Mich	$2.70†	Toledo, O	$2.60†
Clinchfield, Ga	2.60†	Independence, Kan	2.55†	Leeds, Ala	2.45†	Saginaw, Mich	2.60†	Milwaukee, Wis	2.75†
Kingsport, Tenn	2.60†	Hannibal, Mo	2.55†	Duluth, Minn	2.65†	Wyandotte, Mich	2.60†	Green Bay, Wis	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa	2.60†	Hudson, N. Y	2.60†	Buffalo, N. Y	2.60†	Ironton, O	2.60†
Nazareth Pa	2.60†	Universal, Pa	2.65†	Alpena, Mich	2.50†	Oswego, N. Y	2.75†	Montreal City	2.31
Bath, Pa	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich	2.60†	Cleveland, O	2.60†	W. Winfield, Pa	2.65†

†*Prices to hold for first quarter of* 1951.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Per gal. Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	.....	....	.....	.....	.....	.....	.....	.....	.....
Baltimore	150.00‡	57.70‡	.....	$22.00	.....	$21.00v	$0.15	$.09	$.17	$.09i	$.09	$0.12
Birmingham	......	32.50	.....	......	.....	.....	.....	......	......	......	.....	.....
Boston	......	......	.....	24.50a	$35.50a	.1036a	.185a	.115aw	.205aw	.10a	.113a	.205a
Chicago	155.00‡a	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16w	.075b	.....	.....
Cincinnati	.....	.....	.....	21.50k	...	.095	.095	.095w	.....	.....	.....	.....
Cleveland	.....	55.00d	4.33g	26.50	38.50	26.50v	38.50v	.12w	.24w	.115	.125	28
Dallas	e	40.00	e	23.95	42.99	.1012	.1898	26.99	47.77	.0987	.1062	.1423
Denver	.....	48.00	.....	.....	....	.....	...	.....	.....	.....	.....	.....
Detroit	.....	90.00	.....	26.25	....	9.30vx	.....	.1162w	.....	.092	.....	.215
Kansas City	e	e	e	18.55cl	17.55c	.....	.....	.0725cw	.075w	.0635c	.....	.....
Los Angeles	e	.....	e	15.50dm	....	15.50dv	.....	17.00d	.....	16.00dv	.0825j	.1525j
Minneapolis	.....	.....	2.83h	26.00	36.50	24.50v	35.50v	24.50	35.50	.0925	.1225	.2225
Montreal	137.00	e	e	27.00n	36.65n	16.70nu	18.70nu	16.30nu	18.30nu	15.20ns	.184ns	.225ns
New Orleans	.....	.....	.....	16.50e	....o	16.50ev	.....o	.08ew	.....o	.0775	.08	.145t
New York	.....	.....	2.75f	25.50	28.02q	24.50v	44.04qv	.1040w	.1819qw	.1040	.1040	.1847q
Philadelphia	150.00	110.00	4.06	20.50	....	19.50v	.....	.085w	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	22.00	36.00	.10	.20	27.00	39.00	.095	.09	.20
St. Louis	.....	.....	.....	19.25f	....	.1633	.....	.0841w	.....	.15	.....	.....
San Francisco	.....	63.73c	.....	17.00g	32.50gp	17.50gkv	.....	17.50g	.....	16.50v	.085	.145
Seattle	.....	.....	.....	17.00h	37.50h	16.75hv	.....	19.50h	23.50hr	18.50hs	.09h	.10h

‡ Delivered.
PAVING BRICK & BLOCK: a CL. b 3½ x 4 x 8½. c 2½ x 8½ x 4. d LCL, truck deliveries. e Not used. f 2" interior 6# treat. g 3". h 8# treat.
ASPHALTS: a Price at plant, Everett, Mass. b F.o.b. refinery, Lockport, Ill. c F.o.b. Sugar Creek, Mo. d F.o.b. refinery, El Segunda. e F.o.b. Baton Rouge. f F.o.b. Wood River or Roxana, Ill. g F.o.b. Richmond, Calif. h F.o.b. Martinez. i Bulk refinery. j F.o.b. refinery, Englewood, Calif. k 50–110 penetr. l Less than 100 penetr. m 40–80 penetr. n Tax incl. o Drums not avail. p Shipped in steel bbl. q Used drums. r In customer's drums. s Shipped in drums, per drum. t 55-gal. drums. u Per 100 gal. v Per ton. w Per gal. x Previous prices on topping.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT. SHAPES—PLATE	REINF. BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	STEEL RAILS Re-rolled	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$3.65	$3.70	$7.85	....	$72.00	$80.00	Not avail-able	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	7.85	$4.45	72.00	80.00		4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	7.85	4.45	72.00	80.00		4.70	6.15	4.50	....
Buffalo Area	3.70	3.70	7.85	4.45	72.00	80.00	....	4.70	6.15	4.50	$9.85
Cleveland	....	....	7.85	....	.....	.....	....	....	....	....	9.85
Youngstown Area	....	3.70	....	....	.....	.....	....	....	6.15	....	....
Geneva	3.65	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	4.40	....	....	.....	.....	....	....	6.15	....	....
Pueblo	3.65	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u; 5 tons to carload lot b New billet	REINFORCING BARS Rail steel	REINFORCING BARS Add switch	$/cwt for Del.	EXPANDED METAL LATHk Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATHk Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCINGd Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	WELDED FABRIC REINFORCINGd 4x12 in., No. 8 & 12 wires	WELDED FABRIC REINFORCINGd 6x6 in., No 6 & 6 wires
Atlanta	$6.23	$6.05	$6.05	$.025	$.10	$31.50	$31.50	A.P.M.* Joliet, Illinois, Donora, Penn., $2.66 F.o.b. Mill: Monessen, Penn., $2.76	A.P.M.* Joliet, Illinois, Donora, Penn. $1.87 F.o.b. Mill: Monessen, Penn., $1.93	A.P.M.* Joliet, Illinois, Donora, Penn., $2.79 F.o.b. Mill: Monessen, Penn., $2.89
Baltimore	6.54	5.49l	....	....	.10	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00p	52.00p			
Boston	6.40k	5.80k	5.80kc	....	.10/.15	39.00	45.00			
Chicago	5.70	4.95ff	4.95ff	.0625	....	34.50‡	38.50‡			
Cincinnati	6.24r	5.84r	5.84	....	....	37.00zee	40.00-zee			
Cleveland	5.82	4.81e	....	....	.10	37.00‡	40.00‡			
Dallas	8.15	7.00	7.00	....	....	47.85	50.60			
Denver	7.20	7.10r	....	....	....	52.00s	62.00qs			
Detroit	6.09	5.59n		....	.10	53.00	58.00			
Kansas City	6.30nn	5.90#	5.90#	....	....	38.00	40.50			
Los Angeles	6.45fhh	6.15g	....	...	.15	48.00f	54.00kk			
Minneapolis	6.06hh	7.32ll	7.32ll	....	.15	37.00	40.00			
Montreal	6.75i	4.75i	4.75g	....	....	44.10h	46.80h			
New Orleans	....	5.40ok	....	.05	.10	38.50	41.00			
New York	6.40r	6.55	6.55	....	.20	42.00st	48.00st			
Philadelphia	5.45	5.60	....	....	....	35.50‡	38.00‡			
Pittsburgh	5.40/5.60	5.40/5.60	....	....	.10	34.00	36.50			
St. Louis	6.03	5.34c	5.34c	....	....	47.00aa	53.00aa			
San Francisco	7.15ii	5.75l	....	....	.15	40.50	43.50			
Seattle	4.05e	5.35el	....	....	....	57.00smm	47.00smmx			

* At Producing Mill.

‡ Delivered. b 1-5 tons, add 35¢. Less than 1 ton, add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivery in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, Provincial and Municipal sales tax. j Price per ton. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq.yd. n 5-10 tons. o 5 to 15 tons base. p Del. of 5000 sq. yd. or less. q Std. ribbed, 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢, ¾ in., ⅝ in., 15¢, ½ in., 25¢, ⅜ in., 50¢, 5/16 in. 80¢, ¼ in. $1.90. v 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0093 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000-19,999 lbs. ii Rolled at Geneva mill. 400-3999 lbs. kk ⅜" ribbed. ll 5 to 8 tons. mm 2% off for cash. nn 1-5 tons. # 10 tons to CL.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	VITRIFIED SEWER PIPE std. 12 in. s.s.	VITRIFIED SEWER PIPE 24 in. ds.	VITRIFIED SEWER PIPE 36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	CLAY DRAIN TILE 8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	CONCRETE SEWER PIPE 24 in.
Atlanta	$99.00	$0.43	$0.67	$3.39	$7.00	$114.00	$140.00	$0.45	$2.00
Baltimore	109.00	.511	.9855	4.05	10.865	168.60	260.40	.90	2.40
Birmingham	93.00	.42	.75	2.99	....	210.00‡	375.00‡	1.25	2.75
Boston	113.00	.61uvx	.972uvy	4.41uvy	11.68uvy	181.80v	280.20v	1.55mg	3.80mg
Chicago	107.00	.65	1.25	5.10	13.50	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	.511	.9855	3.915	9.635	154.80‡	239.70‡	.75m	2.80m
Cleveland	108.00	.434x	.837x	3.51x	9.335x	147.00	229.00	.80m	3.00m
Dallas	107.00	.436	.822	3.234	9.17	......	......	.49	1.60
Denver	115.00	.43dd	.74dd	3.18dd	....	......	......	.74dd	2.50dd
Detroit	108.00	.70	1.35	5.35	15.29†	240.00m	360.00m	.80	3.20
Kansas City	106.00	.50m	.88m	3.50	....	216.70	......	.70	3.00g
Los Angeles	122.00	.54l	1.07l	5.24l	13.06l	228.20	348.90	.85	2.40ff
Minneapolis	102.86/112.00	.66mo	1.20mo	4.85mo	....	......	......	1.355h	3.85h
Montreal	90.00	.77z	1.35z	4.47z	7.23ez	......	......	72.00jkaa	218.00jkhaa
New Orleans	101.50	.453	.82	4.41	8.85*	235.00bb	412.00bb	.65	2.29
New York	111.00	.70	1.19	4.77	12.71	......	......	1.05	2.80
Philadelphia	110.00	.60	1.10	4.33	12.50	270.00‡	330.00‡	1.35h	3.60h
Pittsburgh	109.00	.386m	.752m	2.83m	7.622m	147.50	230.00	1.05h	2.50g
St. Louis	103.00	.51	.93	3.65	8.50	......	......	1.40il	3.00hl
San Francisco	122.00	.61d	1.20d	5.03d	12.57d	240.00dl	400.00dl	.95	3.20
Seattle	124.00	.51b	.91b	....	....	150.00c	......	.86ee	2.64ee

‡ Delivered. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $5 per ton additional, 30 in. and larger, usually $1 per ton less. b Extra strength ASTM C 200-44T. c 4-in., $90. d SS361-A. e 30 in. g Culvert pipe. Reinforced, ASTM C76-41. h Reinforced. ASTM C75-41. i Reinforced. ASTM C76-37. j Centrispun. k Per 100 ft. l F.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. u ASTM C13-40. v C.L. f.o.b. origin, freight allowed. x 2 ft. lengths. y 3 ft. lengths. z CESA A 60-1941 specifications used. aa No standard specification in Can. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL, delivered, f.o.b. truck. ee 1% off for cash. * Not stocked, only made to order. ff 21". † Est only.

*WROUGHT STEEL PIPE

(Full standard weight)

Mill	2½ & 3 in. Butt Weld† Black %	2½ & 3 in. Butt Weld† Galv. %	3½ to 6 in. Lap Weld† Black %	3½ to 6 in. Lap Weld† Galv. %
Lorain, Ohio	43.5	24.0	....	....
Aliquippa, Pa.	43.5	22.5	36.5a	15.5a
Sparrows Pt., Md.	41.5	22.0	33.5a	13.5a
Benwood, W. Va.	43.5	24.0	38.0c	18.0c
Youngstown, O.	43.5	24.0	....	....
Indiana Harbor, Ind.	42.5	23.0	35.5a	15.5a
Sharon, Pa.	43.5	22.0	....	....
Wheatland, Pa.	43.5	22.5	38.5a	17.5a
Etna, Pa.	43.5b	21.0b	38.0cb	18.0cb
Fontana, Calif.	32.0b	18.5b	24.0ab	10.0ab

† Threaded and coupled. a 3½ to 4 in. b Continuous weld. c 5 and 6 in.

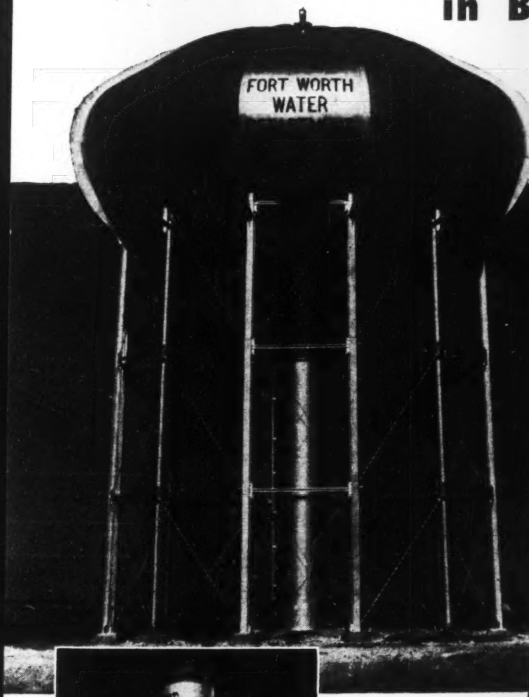
* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. and 1¼ in. black, + 20.0, galv. + 48.0; 1½ in. black, + 14.0 galv. + 44.5; 2 in. black, 4 galv. + 34.5. *Lap Weld* — 2½ in. to 3½ in. black + 20.5, galv. + 47.5; 4½ in. to 8 in. black + 17.5, galv. + 43.0. Freight rates to destination to be added to name delivered price.

(Continued on page 88)

"Signposts" of Progress

in BETTER WATER STORAGE

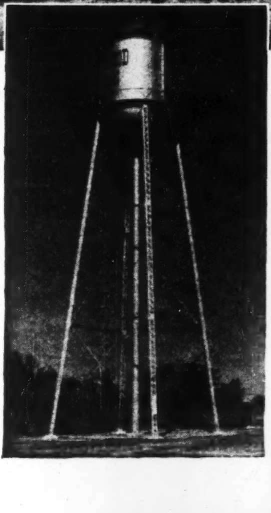


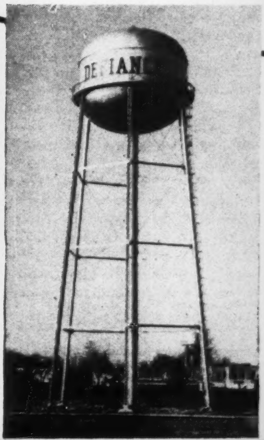
Elevated Steel Tanks

by

PITTSBURGH ·DES MOINES

Dependable water service for the progressive community is marked with distinction by P-DM Elevated Steel Tanks. Handsome in appearance, efficient in performance, economical to use and maintain, Pittsburgh-Des Moines Tanks are always a sound investment. *Write for our latest Water Storage Brochure.*





PITTSBURGH · DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH (25), ... 3414 Neville Island
NEW YORK (7), . . . Room 916, 270 Broadway
CHICAGO (3), . 1218 First National Bank Bldg.
DES MOINES (8), ... 915 Tuttle Street
DALLAS (1), ... 1219 Praetorian Bldg.
SEATTLE . . . . 922 Lane Street
SANTA CLARA, CAL. . . . . . . 621 Alviso Road

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2. Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)

LONG LEAF Y. P. Merchantable grade up to 20 ft.

PLYWOOD Rail freight increment (See note for base *price*)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	Long Leaf 2x12 Rgh	Long Leaf 12x12 Rgh	Plywood ⅝"	Plywood ¾"
Atlanta †	**$75 00**	**$78 00**	**$67 50**	**$69 50**	**$74 00**	**$78 00**	**$77 50**	......	......	......	......	$22 32	$27 24
Baltimore *	**88 00**	**92 00**	**85 00**	**85 00**	**90 00**	**90 00**	**105 00**	......	......	**$148 00**	**$153 00**	22 86	27 90
	105 00g	*105 00g*	*102 00g*	*102 00g*	*102 00g*	*102 00g*	*106 00*	*$107 50*	*$107 50*	......	......	......	......
Birmingham †	**83 00**	**85 00**	**70 00**	**80 00**	**83 00**	**85 00**	**95 00**	......	......	**115 00**	**125 00**	21 78	26 58
	85 00	*85 00*	*75 00*	*80 00*	*80 00*	*79 00*	*85 00*	*85 00*	*85 00*	......	......	......	......
Boston *	**94 00a**	**105 00a**	**90 00a**	**90 00a**	**94 00a**	**103 00a**	......	......	......	......	......	22 86	27 90
³	*103 00*	*96 00*	*102 00*	*102 00*	*103 00*	*100 00*	*115 00*	*125 00*	*125 00*	......	......	......	......
Chicago **	**106 00**	**108 00**	**95 00**	**98 00**	**98 00**	**106 00**	**110 00**	......	......	**140 00**	**140 00**	18 72	22 80
	111 00	*111 00*	*115 00*	*112 00*	*112 00*	*112 00*	*115 00*	*115 00*	*115 00*	......	......	......	......
Cincinnati *	**104 50**	**106 70**	**93 50**	**93 50**	**99 00**	**99 00**	**121 00**	......	......	**154 00**	**154 00**	21 78	26 58
	115 50	*117 70*	*115 50*	*115 50*	*121 00*	*121 00*	*126 50*	*143 00*	*143 00*	......	......	......	......
Cleveland **	**96 00**	**98 00**	**89 00**	**94 00**	**95 00**	**98 00**	*112 00*	*112 00*	*112 00*		......	22 20	27 12
Dallas k†	**78 00**	**80 00**	**69 00**	**58 00**	**59 00**	**59 00**	**98 00**	......	......	**108 00**	**98 00**	18 72	22 80
Denver *	*Not in stock*		*117 00*	*117 00*	*117 00*	*119 00*	*134 00*	*150 00*	*148 00*		......	13 92	16 98
Detroit ‡	**106 00**	**103 00**	**89 00**	**100 00**	**103 00**	**105 00**	......	......	......	**120 00**	......	21 78	26 58
	98 00	*99 00*	*100 00*	*101 00*	*98 00*	*98 00*	*106 00*	*110 00*	*115 00*	......	......	......	......
Kansas City *	**110 120**	**115 00**	**120 00**	**120 00**	**120 00**	**120 00**	......	......	......	......	......	16 56	20 16
	110 120	*119 00*	*120 00*	*120 00*	*120 00*	*120 00*	*135 00*	*145 00*	*145 00*	......	......	......	......
Los Angeles ¹	*110 00*	*110 00*	*108 00*	*108 00*	*108 00*	*108 00*	*125 00*	*135 00*	*125 00*	......	......	13 38ab	16 26ab
Minneapolis #	*130 00*	*130 00*	*130 00*	*130 00*	*130 00*	*130 00*	*150 00*	*150 00*	*150 00*	......	......	16 56	20 16
Montreal ab	92 00	98 00	93 00	95 00	107 00	109 00	......	......	......	......	......	......	......
	175 00	*175 00*	*175 00*	*175 00*	*175 00*	*175 00*	*140 75*	......	......	......	......	......	......
New Orleans †	**80 00**	**83 00**	**79 00**	**80 00**	**83 00**	**85 00**	**100 00**	......	......	**135 00**	**135.00**	18 72	22 80
†	*76 00*	*78 00*	*80 00*	*80 00*	*80 00*	*77 50*	*77 00*	*76 00*	*70 00*	......	......	......	......
New York ²	**117 120**	**120 123**	**105 115**	**115 120**	**120 125**	**125 130**	**150 160**	......	......	**210/240f**	**210/240f**	22 86	27 90
			Range from $120.00 to $125.00				*135/145*	*145/150*	*145/150*	......	......	......	......
New York **	**95 00**	**98 00**	**80 00**	**92 00**	**97 00**	**101 00**	**115 00**	......	......	......	......	......	......
	105 00	*105 00*	*107 00*	*107 00*	*107 00*	*107 00*	*112 00*	*125 00*	*125 00*	......	......	......	......
Philadelphia			**Range from $117.00 to $127.00**				**117/127**	......	......	**190/200**	**190/200**	22.86	27.90
			Range from $130.00 to $140.00				*130/140*	*140/150*	*140/150*	......	......	......	......
Pittsburgh †			**Range from $85.00 to $90.00**			**90 100**	**90/105**	......	......	**95/100**	**110/120**	22 56	27 48
			Range from $95.00 to $105.00			*95 105*	*105/120*	*140/159*	*140/150*	......	......	......	......
St. Louis #c	**121 00**	**123 25**	**108 00d**	**116 75**	**120 00e**	**133 75d**	......	......	......	......	......	18.72	22.80
			134 75i	*135 25e*	*135 25e*	*136 25e*	*140 25e*	*164 50*	*164 50*	......	......	......	......
San Francisco A†	*83/85*	*83/85*	*89/95*	*89/95*	*89 00*	*89 00*	*80/85*	*80/85*	*80/85*	......	......	10.08a	12.30a
Seattle †	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	......	......	......	......

▾ F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common

A Rail freight rate from Northwest mills to San Francisco are **$11.50 to $15.00 per M ft bm.** From Northern Calif. mills **$9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.**

PLYWOOD: **Special concrete form grade Fir Plywood, 4′ by 8′ panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅝″, $204.00; on ¾″, $231.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included.** *a* **Lower rate by water shipment.** *b* **50,000 lb. minimum.**

* **Freight rate increase of 6¢ per cwt., not included in these figures.**

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness A quality	 B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	76%*e*	76%*e*	$0.2275
Baltimore	70-10%	78-10%	.2275
Birmingham	83%	83%	.1750
Boston	79-10%	79-10%	.2275
Chicago	78%*f*	78%*f*	.2275
Cincinnati	78%	78%	.2275
Cleveland	78-10-10%*f*	78-10-10-10%*f*	.2675
Dallas	75%	75%	.2350
Denver	81-5%	81-5%	.2325
Detroit	78-10-10%	78-10-10%	.2275
Kansas City	80-10-10%	80-10-10%	.2325
Los Angeles	75%	80%	.23
Minneapolis	78-10%	78-10%	.2325
Montreal	40-5%*bc*	40-10-5%*bc*	20.00*hi*
New Orleans	83%	83%	.2325
New York	82%*f*	82%*f*	.38*g*
Philadelphia	80%	82%	.2275
Pittsburgh	82%	82%	.20
St. Louis	70-10%*e*	70-10%*e*	.2325
San Francisco	76%	76%	.2275
Seattle	52%*e*	53%*e*	.23

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Sept. 1939; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *e* Discount from list of Jan. 16, 1946. *f* Disc from Oct. 1950.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $21.75. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb.
(except Seismograph Grades)

	C. L. 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.175	$0.2075	$0.2275
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.18 – .1875	.2125– .22	.2325– .24
Rocky Mtn. States	.18 – .1925	.2125– .22	.2325– .245
Pacific N. W. States	.1775– .19	.21 – .2225	.23 – .2425
Pacific S. W. States	.175 – .1825	.2075– .21	.2275– .2325

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	 Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.50	....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.60	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.65	.85
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.75	.86
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	.92
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	.94

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:

		6″x8″x8′ Untr.	 Tr.	7″x9″x8′6″ Untr.	 Tr.
Boston	Oak *i*	....	....	....	....
	Pine *i*	....	....	....	....
New York	S. L. Sap Pine	$1.65	$3.00	$2.25	$3.40
	Mixed Oak	2.00	3.20	2.50	3.70
Birmingham	Hardwood	2.00	3.13*a*	2.68	4.16*a*
Chicago	Red Oak	....	4.00	....	5.00
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.15/2.33	3.10/3.13*a*	3.00/3.10	4.15/4.25*a*
St. Louis	White Oak	2.87	....	3.55	....
	Red Oak	2.77	3.42*a*	3.53	4.40*a*
	Sap Pine or Cypress	3.25*a*	....	4.15	....
San Francisco	Douglas Fir	2.56*e*	3.84*ef*	3.36*bf*	5.04*caf*
Montreal	Birch or Maple	....*h*	....*h*	....*h*	....*h*

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7″ x 9″ x 8′. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

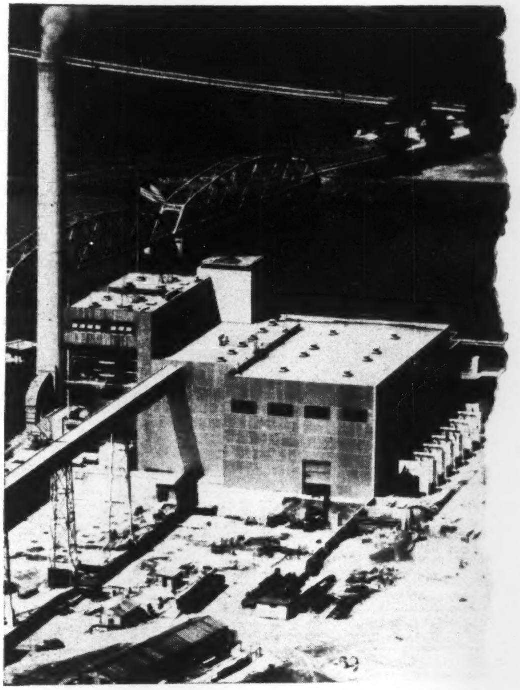
CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

How to Make Power Plants

S-t-r-e-t-c-h-a-b-l-e



Courtesy of The Dayton Power and Light Company, Dayton, Ohio. This structure includes 139 squares of steel Fenestra Type C Panels and 142 squares of aluminum "C" Panels.

Engineers: Ebasco Services, New York City. *Contractor:* Owner.

Power plants must be *expandable.* So—if the future demands it—walls can stretch out to hold added equipment, i.e: The right wall of Fenestra* "C" Panels in the building shown here was moved recently and will be moved again soon.

Are you designing buildings where the easy dismantling of these good-looking panels would be an important factor in the future moving of the buildings or in rearrangement of curtain walls?

Where the installation speed of Fenestra Panels can help get equipment under cover quickly... economically...

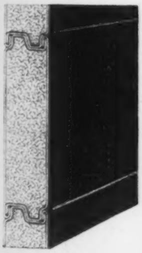
Where noncombustible walls are needed—lightweight walls of great strength that lessen the requirement for structural steel . . .

Where, instead of a 12″ brick wall, you could have "C" Panels with their 3″ layer of enclosed Fiberglas insulation . . . and save money . . .

Where walls should be so smooth that dirt and grease can't get a grip?

What Fenestra Insulated "C" Panels Are

"C" Wall Panels are standardized in 3″ depth and 16″ width, in 18 gage painted steel or 16 B&S gage aluminum. Steel panels vary from 6′ to 14′ in length, weigh only 6.50 lbs. per sq. ft. Aluminum only 3 lbs. Made from two formed members, joined to form a structural unit. Asphaltic impregnated felt is inserted inside the full length to prevent metal-to-metal contact. Double tongue and groove joints make a wall of "C" Panels an integral load-bearing unit. There are 3 positive bearing surfaces per panel. This eases erection, vertical or horizontal. Each panel is vapor sealed, with felt stripping between the formed sides and end closures. Smooth surface permits easy flashing details. Note: In the illustration, the left edge is the outside.



See Sweet's Engineering File—Section 3c/3, mail the coupon, or have one of our engineering representatives call. Also ask about "D" Panels for floors and ceilings, and Holorib Roof Deck.

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METAL BUILDING PANELS

ROOFS · WALLS · FLOORS

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Building Panels Division
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Company____________________________

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STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, In paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	......	......	......	......	......	......	$26.75	$26.75	$19.00	$17.50	$17.50
Baltimore	$175.00	$185.00	$325.00	$380.00	......	......	36.00k	41.00k	26.00	20.00	.....
Birmingham	118.00	128.00	236.00	283.00	......	......	20.00ff	22.50gg	24.74	16.30	.....
Boston	149.00†	161.50†	298.00†	338.00†	......	......	33.50i	36.50i	32.30†	27.90†	.....
Chicago	135.00	145.00	280.00	......	......	......	21.00	23.00	30.80	26.00	.....
Cincinnati	175.00j	185.00j	335.00jdd	......	......	......	42.00j	45.00j	24.00j	22.25j	22.25
Cleveland	118.00cc	126.00cc	236.00cc	......	......	......	32.00	32.00	25.50	23.50	31.00ee
Dallas	......	110.00	......	......	......	......	18.75	.....	31.90	21.80	.....
Denver	......	......	......	......	......	......	34.00	40.00	34.80bb	28.00bb	34.00bb
Detroit	118.65	126.56	237.30	......	294.25	$336.40	33.50cc	32.50cc	32.00	32.00	.....
Kansas City	115.00	122.50	245.00	245.00	303.50	367.00	26.00o	26.00o	30.50p	24.50p	27.00p
Los Angeles	r	r	r	r	r	r	20.00§	.....	36.00	36.00	33.00
Minneapolis	171.50p	192.50p	386.00p	192.50wp	......	......	32.00vp	36.00	37.00bbe	26.00bbe	38.00bbde
Montreal	143.00aq	157.00au	292.00au	......	......	......	26.50	38.50	......	.....	20.00u
New Orleans	160.00	160.00	300.00	......	......	......	29.00	.....	38.00	26.00	37.50
New York	121.60h	129.70h	178.30ch	194.60hn	......	......	35.00	.....	36.00	28.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	33.00	21.50	26.50
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	40.00y	25.00	23.00	2.97m
St. Louis	136.00cc	156.00cc	226.00cc	307.50cc	345.00cc	......	40.00sl	36.25sl	.85saa	.60/.65saa	1.10aaspee
San Francisco	132.00a	148.50a	198.00dda	148.50ta	......	......	35.00	.....	26.30	26.30	2.58m
Seattle	160.00cc	175.00cc		175.00ccw	......	......	39.00s	49.00s	37.50shh	1.50#	3.90mhh

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50. lb. bags. *c* 6 x 12 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *i* F.o.b. warehouse only. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7¼ x 7¾ x 12. Speed title. *o* F.o.b. Buffalo. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. plant. # Per 60 lb sack, no incr., ton price no longer quoted.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$20.00	$31.025	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	19.75	30.65	2.65	4.10	3.22	2.90	4.17	4.17	.42	37.00
Birmingham	20.00	31.025	3.90	3.40	....	2.80	2.75	2.75	....	40.50ee
Boston	19.75	30.65	....	....	....	2.89q	2.79o	2.79o	.42	42.00
Chicago	19.75	30.65	....	....	....	2.73‡u	3.04‡o	3.04‡o	38.00‡bbr	43.00‡
Cincinnati	19.75	30.65	4.05	4.25	....	2.50‡	2.50‡o	2.50/2.75	.42y‡	42.36
Cleveland	19.75	30.65	2.75pgg	3.00sgg	2.65	2.50*q	2.50*o	2.50*o	.36y	40.00
Dallas	20.00	31.40	....	4.05	....	3.50q	3.75o	4.35o	.36	46.00
Denver	20.25	31.15	2.82	4.50	2.63	3.25o	2.76o	2.76o	.47ff	42.00
Detroit	19.75	30.65	2.35	3.30	2.50	2.50	2.50f	2.50	.51	40.00
Kansas City	19.75	30.77	....	2.71	2.65	2.39	2.43o	2.43o	.313	48.00
Los Angeles	19.75	30.90	3.05	4.00	3.75	2.61	1.77e	l	.37	l
Minneapolis	19.75	28.55/30.77	....	....	....	2.50idd	2.50hidd	2.50hidd	.34idd	37.00r
Montreal	....	20.70	3.75t	4.20t	4.62t	3.50t	3.25tf	3.25tf	1.10t	2.90kt
New York	19.75	30.65	3.45y	....	....	2.50	2.50o	2.50o	.34z	37.00
Philadelphia	19.75	30.65	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	19.75	30.65	2.45	2.55	2.20	2.90	2.90o	2.90o	.39	42.00
St. Louis	19.75	30.65	....	....	....	2.50	2.50h	2.75h	.385	40.00
San Francisco	19.75	30.90	2.40	3.40n	1.35	2.61	3.56aa	....	.41	...
Seattle	19.75	31.15	2.51m	2.67m	....	3.58mqcc	3.05hmcc	....	.59mcc	52.00jmc

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* May, 1941 price. *o* Per 30-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* ASTM Spec. D266-41. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. * Correction Jan. 2.50.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.50	$2.00	$2.25	$2.25	$2.375	$2.375‡	$2.35	$1.00	$1.05
Baltimore	3.00	2.35	2.65	2.60/2.80	2.50	2.50	2.50	1.35	1.35
Birmingham	2.75	2.125	2.30	1.975	2.30	2.50	2.45	1.10	1.20
Boston	2.775	2.375	2.70	2.60	2.85	2.60	2.60	1.75	1.75
Chicago	2.625k	2.55	2.60	2.50	2.81n	2.71n	2.60	1.90m	1.90m
Cincinnati	2.70	2.275	2.45	1.675/2.675	2.50	2.55	2.55	1.65	1.65
Cleveland	2.70t	2.825#	2.825	2.825	2.825	2.825	2.825	2.10	1.85
Dallas	3.125†	2.25	2.50	2.25	3.125†	2.50	2.375	1.20	1.35
Denver	3.00	2.35	2.20	2.35	3.00	2.50	2.40	1.50	1.50
Detroit	2.85	2.60	2.80	2.80	2.964l	2.85	2.70	1.90	1.90
Kansas City	2.675	2.225	2.375	1.725/2.475	2.825	2.55	2.625	1.65	1.65
Los Angeles	2.75	2.35	2.50	2.30	3.125	2.50	2.50	1.75	1.75
Minneapolis	2.40	2.12	2.275	2.07	2.50	2.41n	2.435	1.52	1.52
New Orleans	2.60	1.975	2.35	2.225	2.275	2.40	2.35	1.10	1.10
New York	3.548r	3.09bo	3.348o	3.348o	3.599ar	3.456as	3.286p	1.90	1.90
Philadelphia	3.31i	2.525	2.89i	2.50	3.075k	3.03/3.283u	2.825k	1.475	1.775
Pittsburgh	3.00	2.65	2.625	2.80	2.625	2.625	2.80	1.60	1.60
St. Louis	3.09c	2.50h	2.50	2.55	2.875	2.6775c	2.625	1.65	1.60/1.75
San Francisco	3.25	2.375	2.50	2.19	3.00	2.75	2.625	1.65	1.65
Seattle	3.25	2.30	2.50	2.45	3.00	2.65	2.75	1.90	1.95
Montreal*	1.60	1.40	1.50	1.30	1.60	1.50	1.55	1.00	.85

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 2% for electricians. * Cost of living bonus now included in basic wage. # Includes 5c per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.20 homes and housing + 5c vacation fund. *i* Incl. 2% welfare. *j* Incl. 9c/hr. welfare. *k* Incl. 7½ c/hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5c/hr. welfare ins. fund. *n* Incl. 6c/hr. welfare fund. *o* Incl. 3% welfare fund. *p* Incl. 3% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20c pension fund. *s* Incl. 4% welfare and pension fund and 4% vacation fund. *u* Incl. 1% welfare fund. *t* Still negotiating as we go to press. ‡ Correction Jan. 2.375.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Dec. '50	Jan. '51
Common Wages—Building (8 hr. day)	av. per hr.	....*	.62*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	....*	.75*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	....*	1.88*
Bricklayers (8 hr. day)	av. per hr.	....*	1.88*
Struct. Iron Workers (8 hr. day)	av. per hr.	....*	1.50*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1,033.30	1,073.30
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,173.30	1,218.30
½" x 11 meters	per ton	1,163.30	1,208.30
⅝" x 11 meters	per ton	1,153.30	1,198.30
¾" x 11 meters	per ton	1,133.30	1,188.30
⅞" x 11 meters	per ton	1,143.30	1,188.30
1" x 11 meters	per ton	1,143.30	1,188.30
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	36.00	36.00
Rose Gravel	per tr. load	34.00	34.00
Cement, Std. Port. (Tolteca)	per ton	125.00	125.00
Lumber			
Mex. Sacred Fir (Oyamel)	per M ft.	800.00	800.00
1st Class Pine	per M ft.	1050.00	1050.00
2nd Class Pine	per M ft.	950.00	950.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers) $2.615. **ENR Common Average:** $1.593.

Save Men...Money...Material *with* Concrete Joist Construction

In these days of critical shortages—when men and money and material must be used to the very fullest, there is one method of building that truly meets the need on every count—it's Ceco's Meyer steelform construction. For here is a building way that saves as it serves:

Saves men because less time and labor are required in providing open wood centering and form work.

Saves money because less concrete is used . . . the dead load is kept at a minimum . . . less lumber is needed . . . and since removable steelforms can be used over and over again, only a nominal rental fee is charged.

Saves material because only a minimum of critically short steel is needed —and even here less concrete is necessary than required by other concrete floor constructions.

Ceco originated the removable steelform method of concrete joist construction. The company is first in the field—actually providing more services than all competitors combined. So, when concrete joist construction fits the need, call on Ceco . . . the leader over all.

HOSPITALS—Ceco Concrete Floor Joist Construction is ideally suited to hospitals since it provides fire-safe, sound-proof buildings at economical cost. Widely used in Veterans Hospitals.

CONCRETE JOISTS eliminate much of the concrete below the neutral axis, saving money, saving material. Suited to buildings with long spans: stores, offices, apartments, hotels.

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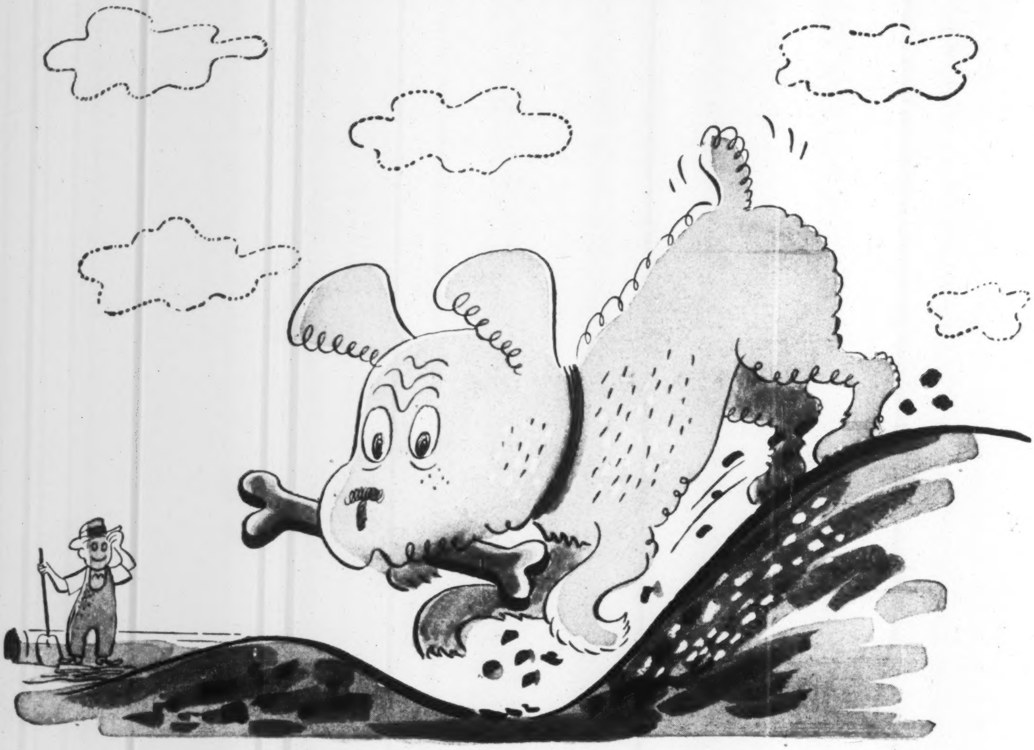


Lower Excavation Costs

Substantial savings in excavation costs are often possible with Transite* Sewer Pipe because of its high flow capacity. This often permits the use of flatter grades and shallower trenches. This is a particularly important advantage where the pipe must be laid at or below the ground water line or where rock excavation is involved.

As an alternate economy, designers may take advantage of Transite's high flow capacity by specifying smaller diameter pipe.

Other Transite Economies

Transite's long 13-foot lengths and light weight lower handling costs. And because there are fewer joints to assemble in the finished line, installation is faster, and more economical.

As a further economy, Transite's sleeve-type joints guard effectively against infiltration. This helps reduce the load on the treatment plant. Therefore, treatment costs are kept to a minimum—plant capacity is conserved for the increased loads incident to community growth.

Made of asbestos, cement and silica combined into a homogeneous material of great stability, Transite Sewer Pipe is corrosion-resistant both inside and outside. Tight joints safeguard against root trouble. And every Transite length is factory-tested for strength and uniformity. This adds up to low maintenance costs through the years.

For all the facts about Transite, send for brochure TR-21A. Address Johns-Manville, Box 290, New York 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

*Transite is a Johns-Manville registered trade mark

.... Johns-Manville

TRANSITE SEWER PIPE...

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
February 30
Delaware

† **Massachusetts**—B.A. 2/15—U. S. Eng., P. O. Box 2316, Boston, Zone 7, barrier constr., Cuttyhunk Island, CIVENG 19-016-51-23.

CONTRACTS—BUILDINGS

▲ **Ernest F. Carlson, Inc.**, 1694 Main St., Springfield, Mass. Contract Awarded. **$1,750,000.** brick, steel mill type FACTORY, EAST LONGMEADOW, MASS. American Saw & Mfg. Co., 67 Boylston St., Springfield, Mass. C 1/23.

▲ **Thomas O'Connor & Co., Inc.**, 238 Main St., Cambridge, Mass. Contract Awarded. **$2,000,000.** 2½ story, brick, 144,000 sq. ft. electronic tubes FACTORY, Foundry Ave., WALTHAM, MASS. Raytheon Mfg. Co., Foundry Ave., Waltham, Mass. CD 1/18, under CA.

▲ **B. Perini & Sons, Inc.**, 73 Montwait Ave., Framingham, Mass. Contract Awarded. **$6,497,000.** 600 unit HOUSING, Proj. PHA 12-1, WORCESTER, MASS. City of Worcester Housing Auth., 58 Pearl St., Worcester, Mass. Awarded Jan. 22. CD 1/3, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES

February 20 — New Jersey
February 27 — Maryland

N. J., Ocean City—B.A. 2/13—State Dpt. Conservation & Economic Development, 1060 Broad St., Newark, dredging project to deepen inland waterway in area of 34th St. drawbridge southward to Sea Isle City.

Pa., Easton—B.A. 2/14—Easton Auth. Board, City Hall, construct complete sewage treatment plant, incl. detritor, control bldg., primary and secondary clarifiers, high rate filters, separate sludge digestion tanks, chlorine contact tank, plumbing, heating and electrical work, install new pumps in an existing pumping station. Plans deposit $25. Ivan M. Glace, 1001 N. Front St., Harrisburg, consult. engr. CD 7/31/47.

Pa., Reading—B.A. 2/14—Joint Municipal Auth. of Wyomissing Valley, Boro Hall, West Reading, sewage treatment works Contr. 1, structural work; Contr. 2, mechanical work; Contr. 3, electrical work; Contr. 4, heating and ventilating; Contr. 5, plumbing. Plans deposit $50. Albright & Friel, Inc., 121 S. Broad St., Phila., Zone 7, consult. engr. CD 8/2/45.

BIDS ASKED—BUILDINGS

N. Y., Boonville—SCHOOL—B.A. 2/14—Bd. Educ., Boonville, school addn. $755,000. Plans deposit $40. A. F. Gilbert, 358 Fifth Ave., New York, archt. CD 11/13, under LB.

Pa., State College—PHYSICAL EDUCATION—B.A. 2/14—General State Auth., 18 and Herr Sts., Harrisburg, sect. of Physical Educ. bldg. at Pennsylvania State College. $800,000. Plans deposit $15. Trautwein & Howard, 1411 Walnut St., Phila., archts. A. F. Jones, c/o owner, ch. engr. CD 5/26.

LOW BIDDERS—HEAVY CONSTRUCTION

Town, 428 60 St., West New York, N. J., rejected bids Jan. 3 sewage disposal plant, WEST NEW YORK, N. J. L. B. **$803,300.** Est. $1,200,000. CD 1/12, under LB.

▲ **Hughes-Foulkrod Co.**, Schaff Bldg., Phila., Pa. Low Bidder. **$1,875,930.** sewage disposal proj., sludge digestion tanks, PHILA., PA. Dpt. P. Wks., City Hall Annex, Phila., Pa. Bids Jan. 19. CD 12/8.

LOW BIDDERS—BUILDINGS

Trenton Housing Auth., 875 New Willow St., Trenton, N. J., rejected bids Dec. 20, general contract 102 apartment along John Fitch Way, TRENTON, N. J. LB. **$924,000.** New bids in February. CD 12/27, under LB.

CONTRACTS—HEAVY CONSTRUCTION

▲ **A. S. Wikstrom, Inc.**, Box 217, Skaneateles, N. Y. Contract Awarded. **$1,185,361.** Utica St. bridge on Oswego River, OSWEGO, N. Y. Bureau Contracts & Accounts, Albany, N. Y. CD 12/27, under LB.

Electro Constr. Co., 358 Broad St. Station Bldg., Phila., Pa. Contract Awarded, **$854,917**, complete electrical sys. in Squirrel Hill Tunnel consisting 2 tubes, 2 ventilation bldgs. and in plaza areas from each tunnel portal and to install damper operating mechanism, U. S. Routes 22 and 30, City of Pittsburgh, Allegheny Co., PENNSYLVANIA. State Hy. Dpt., Harrisburg, Pa. Bids Dec. 28. CD 1/3, under LB.

CONTRACTS—BUILDINGS

▲ **Neisloss Bros.**, 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. Approx. **$15,000,000.** 17 six story bldgs. for 1,400 families to be called Mitchell Gardens, on 60 acre tract bounded by Union St., Whitestone Bridge approach, 25 and 30 Aves., FLUSHING, N. Y. Benjamin Braunstein, 163-18 Jamaica Ave., Jamaica, N. Y., archt.

▲ **John J. Harvey Co.**, New Hartford, N. Y. Contract Awarded. Total cost **$2,800,000.** sub-structure 3 story, bsmnt., 100,000 sq. ft. OFFICE, NEW HARTFORD, N. Y. Utica Mutual Insurance Co., First National Bank Bldg., Utica, N. Y. CD 11/21.

▲ **Birchwood Park Homes**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. Approx. **$1,000,000.** 100 HOMES on tract at Merrick Rd. and Clearstream Ave., VALLEY STREAM, N. Y.

▲ **Monroe Park Constr. Co.**, E. Market and Baynes Sts., Gloucester, N. J. Contract Awarded. **$2,700,000.** APARTMENT DEVELOPMENT, Market St., GLOUCESTER, N. J. Highland Park Apartments, 27 St. and Malton Pike, Camden, N. J. Edwards & Green, Broadway and Carman St., Camden, N. J., archts.

Louis J. Rosato, 201 W. Broadway, Clifton Heights, N. J. Contract Awarded. **$500,000.** RESIDENTIAL DEVELOPMENT, 10 St., UPLAND, PA. The Niessen Co., 20 S. 15 St., Phila., Pa.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
February 16
Kentucky
STREETS AND ROADS
February 16
Kentucky

Fla., Miami—SCHOOL—B.A. 2/14—Dade Co. Bd. P. Instruction, 275 N. W. 2 St., Goulds School, Hainlin Mill Dr. $400,000. Plans deposit $25. Edward T. Rempe Jr., 2206 Ponce de Leon Blvd., Coral Cables, archt.

Tenn., Memphis—CHURCH—B.A. 2/14—Union Avenue Baptist Church, 2181 Union Ave., white brick unit, chapel, concrete fdn., steel frame. $400,000. Walter Nelson, Sterick Bldg., archt. CD 4/11.

▲† **La., Shreveport** — STORAGE FACILITIES—B.A. about 2/15—U. S. Eng., 300 Broadway, Little Rock, Ark., barracks and admin. bldg. at Barksdale Air Force Base, $1,000,000.

W. Va., Morgantown—B.A. 2/15—County Court of Monongalia County, County Court House, constr. rein.-con. arch bridge and approaches, Hartman Run Bridge. Plans deposit $10. Frank D. McEnteer, 504 Baltimore Ave., Clarksburg, consult. engr.

Ala., Tuscaloosa—RESIDENCE HALL—B.A. 2/20—University of Alabama, Tuscaloosa, men's residence hall, $300,000. Miller, Martin & Lewis, Title Guarantee Bldg., Birmingham, archt.

BIDS ASKED—BUILDINGS

▲ **La., Shreveport**—SCHOOL—B.A. 2/14—State Div. Admin., Shreveport, nursing school, $1,200,000. Plans deposit $50. Peyton & Bosworth, 503 Continental-American Bank Bldg., archts.

▲ **Ala., Gadsden**—HOUSING—B.A. About 2/15—Gadsden Housing Auth., Gadsden, 224 housing units, ALA 49-1, Approx. $1,500,000. Paul W. Hofferbert, Gadsden, archt.

▲ **Ala., Huntsville**—HOUSING—B.A. About 2/15—Huntsville Housing Auth., Huntsville, Proj. ALA 47-1, Council Courts Housing. Approx. $1,000,000. Paul W. Hofferbert, Gadsden, archt.

▲ **La., Monroe**—HOUSING—B.A. About 2/15—Monroe Housing Auth., 125 housing units (colored) on Texas Ave., $1,000,000. CD 10/5/50.

▲ **Tenn., Clarksville**—HOSPITAL—B.A. About 2/15—Montgomery Co., Clarksville, hospital, $1,879,000. Speight & Hibbs, Clarksville, archts. CD 7/5/49.

▲ **Tenn., Nashville**—LIBRARY, etc.—B.A. About 2/15—State, Nashville, state library and archives bldg. $1,500,000. H. C. Parrent, Jr., 146 4th Ave., archt. CD 6/22.

S. C., Charleston—HOSPITAL—B.A. 2/16—Bd. Trustees Medical College, State of South Carolina, Baruch Memorial Auditorium of Medical College, Charleston, cast in place concrete piles and rein.-con. foundations for 12 story teaching hospital. Plans deposit $25. Hopkins, Baker & Gill, Florence, archts. CD 1/5.

Va., Williamsburg—DORMITORY—B.A. 2/16—At office Walford & Wright, archts., 103 E. Cary St., Richmond, dormitory at College of William and Mary, for State of Virginia, Richmond. $600,000. Plans deposit $30. CD 5/17. under Commercial Buildings.

▲ **S. C., Charleston**—HOSPITAL—B.A. 2/17—Medical College of State of South Carolina, Charleston, fdns. for teaching hospital, Total est. $9,300,000, Hopkins, Baker & Gill, Florence, archts. CD 6/29.

Fla., Coral Gables—BUS TERMINAL—B.A. 2/20—City, municipal bus terminal. Ray Ganger, 211 Coral Gables First National Bank Bldg., Coral Gables, archt.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Arundel Corp.**, Pier 2 Pratt St., Baltimore, Md. Low Bidder. **$2,404,100, dredging at submarine base,** KEY WEST, FLA. Dpt. **Navy, U. S.** Naval Base, Charleston, S. C. Bids **Jan. 23. CD 12/29.**

LOW BIDDERS—BUILDINGS

▲ **Irons & Reynolds, Inc.**, 1724 H St., N.W. Wash., D. C. Low Bidder. **$2,329,000.** construct Norcom HIGH SCHOOL, PORTSMOUTH, VA. City, Portsmouth, Va. Bids Jan. 19. CD 1/11.

Robert L. Turchin, Inc., 5800 Collins Ave., Miami Beach, Fla., Low Bidder, **$736,821,** HOTEL, SURFSIDE, FLA. Sam Lachman c/o **Henry Hohauser & Assocs.,** archt., 4011 Case Ave., **Miami Beach,** Fla. Bids Jan. 15. CD 1/10.

▲ **Robert E. McKee General Contractor, Inc.** 806 Employers Insurance Bldg., **Dallas, Tex.** Low Bidder. **$7,191,000.** St. Bernard Ave. HOUSING Proj. Exten. LA. 1-13, NEW ORLEANS, LA. **New Orleans** Housing Auth., 500 California **Bldg., New Orleans,** La. Bids Jan. 26. CD 1/16.

▲ **Robert E. McKee General Contractor, Inc.,** 806 Employers Insurance Bldg., **Dallas, Tex.** Low Bidder. **$2,409,000.** Florida Ave. HOUSING, Proj.. Exten. LA 1-11, NEW ORLEANS, LA. New Orleans Housing Auth., 500 California **Bldg., New Orleans,** La. Bids Jan. 30. CD 1/16.

▲ **Clark Constr. Co.,** Owensboro, Ky. Low Bidder. **$1,814,813.** Low rent colored and white HOUSING, CLARKSVILLE, TENN. Bids Jan. 25. CD 1/4.

▲† **Robert E. Maxey Constr. Co., Lubbock, Tex.** Low Bidder. **$2,587,447.** ADMINISTRATION and ENGINEERING bldg., at Arnold Engineering Development Center, TULLAHOMA, TENN. U. S. Eng., Tullahoma, Tenn. Bids Jan. 16. CD 12/7.

CONTRACTS—HEAVY CONSTRUCTION

Nello L. Teer Co., Box 1131, Durham, N. C. Contract Awarded. **$543,382.** Grading, subgrade, b. conc. binder and surf. 24.4 mi., Proj. 1425, Edgecombe and Halifax Counties, NORTH CAROLINA, State Hy. & Pub. Wks. Comn., **Raleigh, N. C.** Bids Dec. 19, warded Jan. 16. CD 12/26 under LB.

▲† **Standard Dredging Co.,** 80 Broad St., New York, N. Y. Contract Awarded. First part, **$1,293,000,** second part, **$293,564, total** $1,586,564, dredging turning basin and entrance channel from Basin to St. Johns River near jetties, MAYPORT, FLA. Dpt. Navy, Bureau Yards & Docks Annex, Arlington, Va. Bids Jan. 23, awarded Jan. 27. CD 1/29, under LB.

† **Hyde Constr. Co.,** P. O. Box 385, Jackson, Miss. Contract Awarded. **$761,924.** Rehabilitation Columbus Air Force Base, COLUMBUS, MISS. Purchasing & Contg. Office, Scott Air Force Base, Ill. Bids Jan. 17.

Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. Contract Awarded. **$600,171.** Contr. 229-S Sewage Pumping Station 23, Contr. 307-S install c.i. sewage discharge main, Contr. 321-W water mains, Contr. 305-S vitr. clay sewers, NEW ORLEANS, LA. Sewerage & Water Bd., 526 Carondelet St., New Orleans, La. CD 11/22 under Sewers, etc. and 11/22 under Water Supply, L.B.

CONTRACTS—BUILDINGS

▲ **Southeastern Constr. Co.,** 301 W. 2 St., Charlotte, N. C. Contract Awarded. **$3,305,000.** HOUSING, CHARLOTTE, N. C. Charlotte Housing Auth., 831 Seigle Ave., Charlotte, N. C. Bids Dec. 6. CD 12/12. under LB.

▲ **T. A. Loving & Co.,** Bank of Wayne Bldg., Goldsboro, N. C. Contract Awarded. **$865,000.** AGRICULTURAL BLDG., annex, RALEIGH, N. C. State of North Carolina Buildings & Grounds, George B. Cherry, supt., Raleigh. Bids Nov. 7, awarded Jan. 25. CD 11/14, under LB.

▲ **Arnold Constr. Co.,** Palm Beach, Fla. Contract Awarded, **$1,439,777.** Southwest Fla. TB SANATORIUM; **May Plumbing Co.,** Hollywood, Fla., **$424,459,** heating and plumbing system, TAMPA, FLA. State TB Bd., Box 1847, Delray Beach, Fla. Bids Jan. 19. CD 12/7.

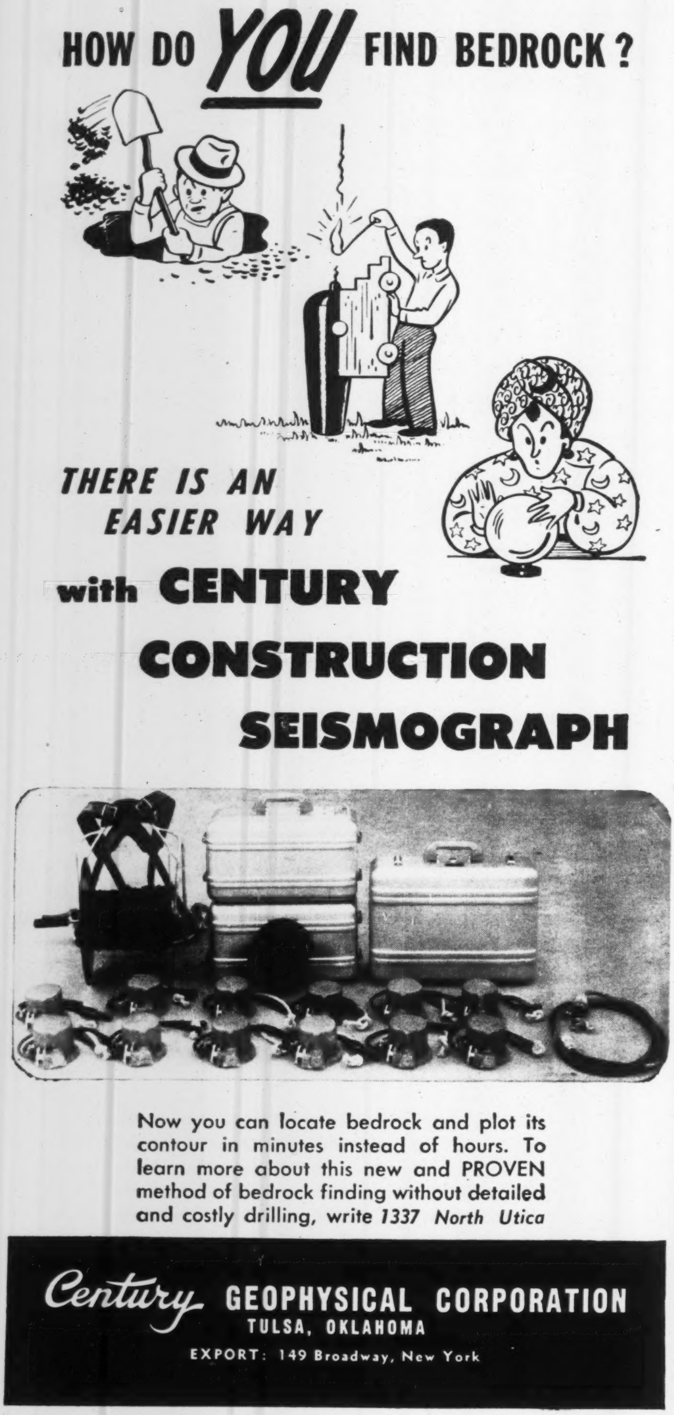
J. A. Jones Constr. Co., 354 Areo Dr., Shreveport, La. Contract Awarded. **$700,000.** 86 HOMES, SHREVEPORT, LA. Ashton Glassell and Mr. & Mrs. R. T. Hornhill, 1417 Dalzell St., Shreveport, La.

▲ **James E. Caldwell,** Audry Hotel, Abbeville, La. Contract Awarded. **$1,445,941.** 2 story, L-shaped HIGH SCHOOL, auditorium and gymnasium, WEST MONROE, LA. Ouachita Parish School Bd., Monroe, La. Awarded Jan. 24. CD 1/23, under LB.

▲ **Fort Knox Constr. Co.,** 2554 S 3 St., Louisville, Ky. Contract Awarded. **$7,600,000.** Construct, manage, finance, HOUSING for military personnel, FORT KNOX, KY. Dpt. Army, Fort Knox Ky.

▲ **Derby Constr. Co., Inc.,** 300 Crittendon Dr. Louisville, Ky., **Perkins Constr. Co.,** Louisville, Ky. and **F. W. Owens Co., Inc.,** 119 N. 5 St., Louisville, Ky. Contract Awarded. **$2,074,000.** General constr. negro HIGH SCHOOL, LOUISVILLE, KY. Bd. Educ., Fifth and Hill Sts., Louisville, Ky. Bids Jan. 26, awarded Feb. 5. CD 12/6.

▲ **Sullivan & Cozart, Inc.,** 822 W. Kentucky St., Louisville, Ky., **F. W. Owens Co., Inc.,** 119 N. 5 St., Louisville, Ky., and **Perkins Constr. Co.,** Frankfort, Ky. Contract Awarded, **$6,084,000.** General constr. and site imprvs. SOUTH HOUSING, Proj. Ky 1-5; **Sauer Co.,** 1183 Essex Ave., Columbus, O., **$1,419,000,** plumbing and heating, LOUISVILLE, KY. Louisville Housing Auth., York St., Louisville, Ky. CD 1/23 and 1/24, under LB.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MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

February 16 Illinois
February 20 Wisconsin

STREETS AND ROADS

February 16 Illinois
February 20 Wisconsin

▲ **Ill., Tinley Park**—B.A. 2/13—State, Capitol Bldg., Springfield, grading and sewers and water for Mental Hospital, on 400 acre site. Total $22,000,000. Herrick Hammond, 53 W. Jackson St., Chicago, 4, archts. Skidmore Owings & Merrill, 100 W. Monroe St., Chicago, Zone 2, assoc. archts. CD 2/2.

▲ **O., Dayton**—B.A. 2/14—City, City Hall, 2 bldgs., filtration plant and water softening works. $4,500,000, Alvord Burdick & Howson, 20 N. Wacker Dr., Chicago 6, Ill., engrs. CD 5/27/48.

BIDS ASKED—BUILDINGS

Mich., Grand Blanc—SCHOOL—B.A. 2/14—Grand Blanc Twp., N. S. Lund, secy. Bd. Educ., brick, steel, stone high school adn., incl. gymnasium, $500,000. Plans deposit $25 refundable, Warren S. Holmes Co., 2200 Olds Tower, Lansing, archts. CD 10/26.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Merritt-Chapman & Scott Corp.**, 1648 Standard Bldg., Cleveland, O. Low Bidder. **$1,838,134**. and **Bass Eng. & Constr. Co.**, 215 Birmingham Theater Bldg., Birmingham, Mich. **$187,400**. water sys., intake structure and conduit, valve vault, appurtenances, BAY CITY, MICH. City, George MacPhail, mgr., Bay City, Mich. Francis Eng. Co., 303 Eddy Bldg., Saginaw, Mich. engrs. Bids Jan. 4.

LOW BIDDERS—BUILDINGS

▲ **George Sheaf & Co.**, 449 Neilston St., Columbus, O. Low Bidder. **$1,120,136**, general constr. COURTHOUSE annex, COLUMBUS, O. Court House Annex Bldg. Comn., c/o County Comrs., Court House, Columbus, O. Bids Jan. 25. CD 11/27.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Walter Toebe & Co. and Fry & Kain Co.**, 411 W. Gier St., Lansing, Mich. Contract Awarded. **$1,270,732**. grade separation and bridge over Grand Trunk Western Ry. and Red Cedar River, Proj. U UG X3 of 33-6-1° U BI of 33-6-36 Cl (U UG 146 6), Ingham Co., MICHIGAN, State Hy. Comn., Lansing, Mich. CD 1/26, under L.B.

CONTRACTS—BUILDINGS

▲ **Hummel Constr. Inc.**, G. Robert Hummel, pres., Miamisburg, O. Owner Builds. Approx. **$1,000,000**. HOME and APARTMENT development on 12 acre tract west of Main St. near Nottingham Rd., DAYTON, O.

▲ **Arthur G. McKee & Co.**, 2300 Chester St., Cleveland, O., Contract Awarded, BLAST FURNACE*** **Wilputte Coke Oven Div. of Allied Chemical & Dye Corp.**, 40 Rector St., New York, N. Y., 76 COKE OVENS and BY-PRODUCTS PLANT*****F. H. McGraw Constr. Co.**, Middletown, O., railroad tracks, roads, sewers and other items, MIDDLETOWN, O. Total est. **$35,000,000**. Armco Steel Corp., Middletown, O.

▲ **Babcock & Wilcox Co.**, Sterling Ave., Barberton, O. Contract Awarded. BOILERS; **Westinghouse Electric Corp.**, 1st Natl. Tower, Akron, O., TURBINES and GENERATORS for power plant at NILES, O. Total est. cost, **$32,200,000**. Ohio Edison Co., 47 N. Main St., Akron, O. CD 1/19.

▲ **George W. Lathrop & Sons, Inc.**, 1501 Montcalm St., Toledo, O. Contract Awarded, fdns. for fuel oil tanks and new LOADING facilities*****Graver Tank & Mfg. Co., Inc.**, 332 S. Michigan St., Chicago, Ill., new TANKS, TOLEDO, O. Est. **$1,000,000**. Sun Oil Co., Woodville Rd., Toledo, O. CD 5/13/49.

Hagerman Constr. Co., 403 Strauss St., Fort Wayne, Ind., Contract Awarded, **$724,684**, general constr. Y.M.C.A. BLDG., MARION, IND. Marion Y.M.C.A. Assn., Marion, Ind. A. M. Strauss, 604 Strauss St., Fort Wayne, Ind., consult. engr. CD 3/28/46.

▲ **Carroll Constr. Co.**, 333 N. Michigan St., Chicago, 1, Ill., Contract Awarded. superstructure, and **John Griffiths Son Constr. Co.**, 228 N. La Salle St., Chicago, 1, Ill., substructure, 4 story, bsmnt. OFFICE and HEADQUARTERS BLDG., CHICAGO, ILL. Approx. **$1,500,000**. Catholic Order of Forresters, Madison and Franklin Sts., Chicago, 6, Ill. CD 10/18.

▲ **City Wide Builders**, 5400 Elston Ave., Chicago, 30, Ill., Contract Awarded, **$1,100,000**, 180,000 sq. ft. FACTORY, NILES, ILL. International Register Co., 2620 W. Washington St., Chicago, Ill. Awarded Jan. 22. CD 12/15.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Oklahoma**—TRANSMISSION LINE, etc.—B.A. 2/14—Southwestern Power Admin., P. O. Drawer, 1619, Tulsa, Zone 1, 44 mi. 132 kv-H frame transmission line from Lindsay to Anadarka, Garvin Co., $200,000; sub-station addn. and constr. 1 mi. 66 kv transmission line at Rovia, Johnston Co., $90,000. Plans deposit $15 each proj. CD 4/13/49.

BIDS ASKED—BUILDINGS

Minn., St. Paul—LIBRARY—B.A. 2/14—University of Minnesota, R. S. Callaway, purch. agent, 323 Admin. Bldg., Main Campus, Minneapolis, 2 story, bsmnt., sub-bsmnt., penthouse, library, $400,000. Plans deposit $15. Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, archts. CD 8/18/50.

† **Colorado**—GENERATOR—B.A. 2/15—Bureau Reclamation Dpt. Interior, Bldg 1-A, Denver Federal Center, Denver, Colo., furnishing, installing generator (second unit) for Flatiron Power Plant, Colorado-Big Thompson Proj., approx. 11 mi. southwest of Loveland and approx. 15 mi. east of Estes Park, Spec. DC-3279 1. N. McClellan, ch. engr.

Minn., Minneapolis—HOSPITAL—B.A. 2/15—Fairview Hospital, 2312 Sixth St. S., 1 story, bsmnt., 120x159 ft. hospital addn., $600,000. Lang & Raugland, 802 Wesley Temple Bldg., archts.

Minn., St. Paul—HOSPITAL—B.A. 2/15—St. John's Hospital, H. C. Manke, pres., 390 Mound Blvd., hospital addn. $700,000. Ellerbe & Co., E. 505 First National Bank Bldg., archts. CD 5/20/49.

Neb., Omaha—SCHOOL—B.A. 2/15—Bd. Educ., 3902 Davenport St., Keilom School. John Latenser & Sons, 1307 Farnam St., archts. CD 4/7.

▲ **Tex., El Paso**—OFFICE—B.A. 2/16—El Paso Natural Gas Co., Bassett Tower, El Paso, 18 story, bsmnt., masonry, steel, concrete frame and foundation, buff colored limestone exterior office, partial air-conditioning, steam heating, $3,000,000. Plans deposit $50. Extended date. Kenneth Franzheim, 206 Crawford St., Houston, and Carroll & Daeuble, 1001 E. Yandell St., archts. CD 1/19.

Tex., Waco—COURTHOUSE, JAIL—B.A. 2/19—McLennan Co. Court House, 5 story brick, pumice block, hollow tile, granite, stone, courthouse and jail annex, pier and beam fdn. $650,000. Plans deposit $25. Walter Cocke, Jr., 1507 Franklin St. and Spicer & Bush., Amicable Bldg., archts. CD 5/16.

† **Montana**—POWER PLANT—B.A. 2/20—Bureau Reclamation, Hungry Horse Gov't Camp, Columbia Falls, completion of Hungry Horse Dam, power plant, switchyard, South Fork of Flathead River about 9 mi. southeast of Columbia Falls, Hungry Horse Proj. Spec. DC 3282.

LOW BIDDERS—HEAVY CONSTRUCTION

Barton Contg Co., 3115 Hennepin Ave., Minneapolis, Minn., Low Bidder, **$63,852**, grav. base, road-mixed bit. surf. 9.6 mi., Carver and Hennepin Counties; **H. Ganley, Inc.**, 2336 Hampden Ave., St. Paul, Minn., **$79,782**, crushed rock base, plant mixed bit. surf. 6 mi., Mower Co., MINNESOTA, State Hy. Dpt., St. Paul, Minn. Bids Jan. 19. CD 1/4.

▲ **J. E. Latta Constr. Co.**, 6609 Latta Pl., St. Louis 20, Mo. Low Bidder. **$1,034,295**. altering secondary basins, connecting conduits at Chain of Rocks WW plant on Mississippi River, ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., St. Louis 3, Mo. Bids Jan. 23. CD 12/27.

▲ **Cage Brothers**, San Antonio, Tex., Low Bidder, **$148,058**, est. $163,000, grading, structures, fdn. course and 2 courses, surf. tr. 8.939 mi. Hy. SH 202, Proj. S 644 (3), Live Oak and McMullen Counties; **$75,895**, est. $75,000, grading, structures fdn. courses, 2 crs. surf. tr. 5.785 mi. Hy. FM 1331, Proj. R 1202-3-1, Williamson Co.; **$136,192**, est. $120,000. fdn. flex base, 2 course surf. tr. 3.871 mi. Hy. 67, Ellis Co.*****John F. Buckner & Sons**, Cleburne, Tex., **$75,471**, est. $78,000. grading, structures, base, surf. 3.849 mi. Hy. FM 1093, Proj. S 85 (3), Fort Bend Co.; **$114,376**, est. $116,000. grading, structures, base surf. 5.672 mi. Hy. FM 1563, Proj. V 1097-3-1, Hunt Co.*****Campbell & Kay**, Tyler, Tex., **$144,292**, est. $162,000. flex base, 1 course surf. tr. 8.692 mi. Hy. SH 155, Proj. F 652 (13), Smith Co.*****Ivan Dement**, P. O. Box 1787, Amarillo, Tex., **$68,561**, est. $75,000. grading, structures 9.24 mi. Hy. U. S. 66, Proj. FI 643 (10), Potter Co.*****Howard Bros.**, Madisonville, Tex., and **R. B. Butler, Inc.**, Bryan, Tex., **$84,797**, est. $76,000. grading, structures, base, surf. 6.924 mi., Hy. FM 747, Proj. R 1112-1-1, Cherokee Co.*****Hugh McMillan**, El Paso, Tex., **$64,561**, est. $80,000. grading, structures, base surf. 8.084 mi. Hy. FM 516-873, Proj. S 487 (3), Ward Co.; **$101,850**, est. $81,000 grading, structures, select material, 1 course, surf. tr. 9.695 mi. Hy. FM 170, R 957-8-3, Presidio Co.*****Holland Page**, Box 1181, Austin, Tex., **$66,971**, est. $76,000. grading, structures, fdn. course, one course surf. tr. 10.252 mi. Hy. FM 334, R 876-2-3, Kinney Co.*****Texas Bitulithic Co.**, P. O. Box 5297, Dallas, Tex., **$763,651**, est. $340,000. c. conc. 1.504 mi. Hy. SH 550, Proj. UI 1082 (5), Tarrant Co.*****Thomas & Ratliff**, Rogers, Tex. **$65,378**, est. $82,000. grading, structures base, surf. 4.83 mi. Hy. FM 1457, Austin Co.*****R. B. Smith, Inc.**, 3702 Glen Haven, Houston, Tex. **$291,362**, est. $210,000, grading, structures, base, surf. 9.448 mi. Hy FM 518, V976-3-3, Galveston Co., TEXAS, State Hy. Comn., Austin, Tex. Bids Jan. 23. CD 1/8.

CONTRACTS—BUILDINGS

▲ **Paul E. Weaver Co.**, 550 Mynster St., Council Bluffs, Ia. Owner Builds. **$1,000,000.** HOUSING, COUNCIL BLUFFS, IA.

▲ **Bechtel Corp.**, 220 Bush St., San Francisco, Calif. Contract Awarded. **$5,000,000.** synthetic detergent PLANT, incl. 6 story processing unit, 3 story packaging unit and electric sub-station at Pagedale, ST. LOUIS, MO. Lever Brothers, 80 Varick St., New York. N. Y.

▲† **Alport-Carlo Constr. Co.**, 1118 Title Guaraty Bldg., St. Louis 1, Mo. Contract Awarded. **$1,709,000.** Rehabilitation bldgs. for SHOP facilities, OFFICES, CLASSROOMS, WAREHOUSES, 8900 S. Broadway for St. Louis Army Medical Depot, ST. LOUIS, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 6, Mo. CD 1/16, under LB.

▲ **Aluminum Ore Co.**, c/o Aluminum Co. of America, 2156 Gulf Bldg., Pittsburgh, 19, Pa. Own Forces. **$55,000,000**. alumina plant near BAUXITE, ARK.

George A. Jackson & Assocs., 1806 Main St., Dallas, Tex., Owner Builds. **$650,000.** 75 single family HOMES, DALLAS, TEX. CD 9/29.

▲ **W. S. Bellows Constr. Co.**, 716 N. Everton St., Houston, Tex., Contract Awarded, **$1,500,000,** FORGE SHOP; Approx. **$450,000,** addnl. general PLANT repairing, remodeling, overhauling; Approx. **$1,150,000,** TOOL and DIE SHOP new unit; Approx. **$700,000,** addnl. SHOP unit for rough machinery; Approx. **$850,000,** heat treatment PLANT unit; Approx. **$300,000,** drop hammer SHOP unit, HOUSTON, TEX. Cameron Iron Works, Inc., Silber Road, Houston, Tex. Grand total $4,950,000. CD 12/26.

▲ **Stone & Webster Engineering Corp.**, 850 M. Esperson Bldg., Houston, Tex. Contract Awarded. **$3,500,000.** furnishing, installing CHEMICAL PLANT PROCESSING EQUIP., TEXAS CITY, TEX. Monsanto Chemical Co., Texas City, Tex. Awarded Jan. 17. CD 4/13.

▲ **F & S Constr. Co.**, 5600 N. 7 St., Phoenix, Ariz. Contract Awarded. **$25,000,000**. 1600 unit HOUSING, SHOPPING CENTER, E. 12 to E. 6 Aves., Peoria St. in Araphoe Co., **AURORA, COLO.** Samuel Hoffman, c/o contractor. **CD 11/28.**

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS

February 15
Nevada

February 21
California

February 23
California

Wash., Wenatchee—B.A. 2/19—Chelan County, Public Utility Dist., c/o Stone & Webster Eng. Corp., engrs., 49 Federal St., Boston, Mass., 2 three-phase power transformers for $26,000,000 expansion at Rock Island Dam; 6 hydraulic turbines for direct connection to 25,000 kva generators at Rock Island Dam being enlarged in $26,000,000 project. CD 1/2.

† **Arizona-California-Nevada**—B.A. 2/20—Bureau Reclamation, Dpt. Interior, Coachella, Calif., earthwork, pipe lines and structures, lateral 94.2 part 1 of

Dumpcretes cut costs
on 7½ million dollar
military housing job!

The Dumpcrete above started to pour just 60 seconds before this picture was taken ... two yards of concrete have whizzed through its chute in the meantime ... cutting time, cutting costs.

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DUMPCRETE
DIVISION
MAXON CONSTRUCTION COMPANY, INC.

593 Talbott Building
Dayton 2, Ohio

Unit 9 Coachella Valley Distribution System All-American Canal System, Boulder Canyon Proj., Spec. DC-3284. CD 9/12/44.

BIDS ASKED—BUILDINGS

Calif., Imperial—SCHOOL—B.A. 2/20—Imperial Valley Union High School Dist., Imperial, 2 frame, stucco school buildings, $325,000. Plans deposit $20. H. E. Hansen, 257 S. Spring St., Los Angeles, archt. CD 6/2.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Lookout Point Contractors**, American Bank Bldg., Portland, Ore. Low Bidder. **$1,992,362**, est. $1,687,455. 14 mi. track relocation on Southern Pacific main line, Lane Co., CIVENG 35-026-51-126, OREGON, U. S. Eng., Pitock Block, Portland, Ore. Bids Jan. 25. CD 1/15.

LOW BIDDERS—BUILDINGS

▲ **A. Ritchie & Co.**, 2102 Melrose St., Walla Walla, Wash. Low Bidder. **$1,028,910**, est. $700,000. 1 story, 70,000 sq. ft. rein.-con. Jason Lee SCHOOL, RICHLAND, WASH. School Dist. 400, Richland, Wash. Bids Jan. 24. CD 12/29.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Morrison-Knudsen Co., Inc.**, 310 Broadway, Boise, Idaho, and **City Electric & Fixture Co.**, 2014 3 Ave., Seattle,; 1, Wash. Contract Awarded. **$1,088,605.** Steel towers at Jim Creek Naval Communications Station, ARLINGTON, WASH. Yards & Docks Annex, Navy Dpt., Arlington, Va. Bids Jan. 19. CD 1/24, under LB.

▲ **Guy F. Atkinson**, Cascade Bldg., Portland, Ore. Contract Awarded. **$1,988,572.** 1,468 ft. bridge across Columbia River, The Dalles, Wasco Co., OREGON. Wasco Co., Court House, The Dalles, Ore. Bids Jan. 11, awarded Jan. 24. CD 1/16, under LB.

Warren Northwest, Box 5072, Portland, Ore., Contract Awarded, **$84,665,** pavement resurf. 5.21 mi. Monmouth-Suver Rd. Sec., Pacific Hy. west, Polk Co.; **Leonard & Slate,** 7805 S.W. 40 St., Portland, Ore., **$850,863,** grading, surf. 6.41 mi., 13 culverts, Old Oregon Trail Hy., Union Co., OREGON. State Hy. Comn., Salem, Ore. Awarded Jan. 23. CD 1/15.

▲ **V. C. K. Constr. Co.,** 6124 Ferguson Dr., Los Angeles, Calif. Contract Awarded, **$707,004,** Unit I; **$748,771** Unit II; **Chas. I. Brown Co., Paul Vukich Constr. Co.,** 6465 Northside Dr., Los Angeles, Calif., Unit III, **$763,803,** Magnolia Trunk Sewer Proj., ANAHEIM, CALIF. Orange Co. Joint Outfall Sewer, 204 Center St., Anaheim, Calif. Grand total $2,219,578. Bids Jan. 9, awarded Jan. 25. CD 1/19, under LB.

CONTRACTS—BUILDINGS

▲ **Woodman Bldg. Co.,** 590 S. San Vicente Blvd., Los Angeles, Calif. Owner Builds, **$1,680,000.** 210 frame, stucco DWELLINGS, Darlington and Bradford Sts., etc., LOS ANGELES, CALIF. Southwest Drafting Service, 2724 W. Florence St., Los Angeles, Calif., archt.

▲ **Coronet Homes Assoc.,** 5733 Lankershim Blvd., Pasadena, Calif. Owner Builds, **$2,625,200.** 272 frame, stucco DWELLINGS, in Tract 17089, PASADENA, CALIF. E. H. Fickett, 5657 Wilshire Blvd., Los Angeles, archt.

▲ **Bechtel Corp.,** 3780 Wilshire Blvd., Los Angeles, Calif., Contract Awarded, **$3,000,000,** PLANT, Newhall St., SAN JOSE, CALIF. Food Mchy. & Chemical Corp., San Jose, Calif. Awarded Jan. 25.

▲ **MacDonald Bros.,** 6014 W. Adams St., Los Angeles, Calif. Owner Builds. **$1,480,000.** 148 frame, stucco DWELLINGS, SANTA BARBARA, CALIF. Hugh Gibbs, 441 E. 1 St., Long Beach, Calif., archt.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

Alaska—B.A. 2/21—Alaska Road Comn., Juneau, 80 ft. I-beam across Darling Creek at Mile 233; 50 ft. I-beam over Bear Creek at Mile 235.3; 30 ft. I-beam span at Mile 230 and Mile 236.8, Richardson Hy.

BIDS ASKED—BUILDINGS

▲† **Alaska, Juneau**—TERRITORIAL OFFICE—B.A. 2/28—Dpt. Interior, Office of Territories, Alaska P. Wks., Juneau, 5 story bsmnt., rein.-con. territorial office, Proj. No. 50-A-7. $1,200,000. Plans deposit $25. Foss & Malcolm, Juneau, archt. J. D. Argetsinger, dist. engr. CD 6/16.

CONTRACTS—BUILDINGS

▲† **Patti MacDonald Constr. Co.,** 1340 Admiral Blvd., Kansas City, Mo. Contract Awarded. **$9,399,900,** est. $11,470,178, central HEATING and POWER PLANT, FORT RICHARDSON, ALASKA. U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage. Bids Jan. 10. CD 1/17, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Blenheim—B.A. 2/17—G. L. Huffman, clk. Harwich Twp. Council, Harwich Twp., 6,100 lin. ft. sea wall and 5,610 lin. ft. groynes. $200,000.

BIDS ASKED—BUILDINGS

▲ **Ont., London**—HOSPITAL—B.A. 2/15—Victoria Hospital Trust, Wm. Loveday, chn., London, 8 story, Y-shaped, brick, steel, concrete hospital incl. 200 beds, cancer clinic, physio-therapy and pathological laboratories, $1,500,000. Extended date. CD 9/20.

Ont., Toronto—FACTORY—Bids Asked—Acme Electric (Canada) Ltd., 824 Notre Dame St. W., Montreal, Que., factory, in East York Twp.

CONTRACTS—HEAVY CONSTRUCTION

J. P. Porter Co. Ltd., 1010 St. Catherine St. W., Montreal, Que. Contract Awarded, Approx. **$568,293,** Pier C. reconstruction, PICTOU, N. S. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. CD 12/21, under LB.

Kenty County Council, Chatham, Ont. Own Forces, **$920,000,** road construction, maintenance, bridges, new machinery, CHATHAM, ONT. W. Colby, County Bldg., Chatham, Ont., engr.

▲ **Edison-Swan Electric Co.,** 155 Charing Cross Rd., London, England, **Zenith Electric Supply Ltd.,** 177 King St. W., Toronto, Ont., **Stokes-Rees Corp., Ltd.,** 1757 Place D'Armes, Montreal, Que., **British General Electric (Canadian) Ltd.,** 1411 Crescent Rd., Montreal, Que. Contract Awarded. Entire subway total est. **$30,000,000.** contracts for thermoplastic CABLE, rapid transit subway, TORONTO, ONT. Toronto Transportation Comn., 35 Yonge St., Toronto, Ont. Bids Jan. 30. CD 1/5.

▲ **Merritt-Chapman & Scott Corp.,** 17 Battery Place, New York, N. Y., Contract Awarded. **$20,000,000,** underwater traffic artery, Quebec City to Levis, QUEBEC, Quebec-Levis Tunnel, Inc., c/o J. A. Racicot, Rimouski, Que. CD 10/24.

CONTRACTS—BUILDINGS

Dominion Constr. Co. Ltd., 150 West 1 Ave., Vancouver, B. C. Contract Awarded. **$596,188.** 3 story, 70-bed rein.-con. HOSPITAL Addn., KELOWNA, B. C. Kelowna, Hospital Bd., Kelowna, B. C. Bids Oct. 7, awarded Jan. 20. CD 11/6, under LB.

▲ **Fried Constr. Co., Ltd.,** 70 Victoria St., Toronto, Ont. Contract Awarded. **$1,130,387.** Central Technical SCHOOL addn., alterations, TORONTO, ONT. Bd. Educ., 155 College St., Toronto, Ont. Bids Jan. 15. CD 12/29.

▲ **E. B. Badger Sons Co.,** 75 Pitts St., Boston, Mass., U. S. A. Contract Awarded. **$4,500 000.** Glycol PLANT and facilities, MONTREAL EAST, QUE., Dominion Tar & Chemical Co. Ltd., Sun Life Bldg., Montreal, Que. CD 11/15.

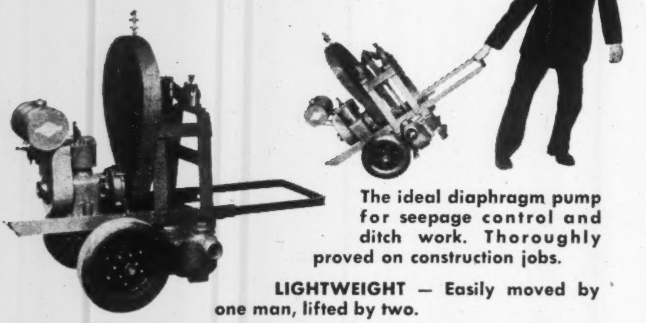
FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Australia—R. F. Archer, secy. Snowy Mountains Hydro-Electric Auth., 85 O'Riordan St., Alexandria, New South Wales, receiving bids April 16, for design and construction of Guthega hydro-electric project, in Snowy Mountains Area. Plans deposit L/A1000. CD 9/1.

(Proposed Advertisements see pp. 96 to 101)

Here is Marlow's NEW lightweight, economical MUD HOG pump



The ideal diaphragm pump for seepage control and ditch work. Thoroughly proved on construction jobs.

LIGHTWEIGHT — Easily moved by one man, lifted by two.

LOW COST — Less than half the cost of other Mud Hogs.

RUGGED — Handles clear or trashy fluids . . . from a gurgle to a gush . . . up to 3,200 GPH. Strongly constructed for long trouble-free service.

OTHER NEW FEATURES — Two self-aligning crank shaft bearings end shaft and bearing failures. Strong, simple power transmission reduces maintenance. Many other outstanding features.

Ask your Marlow distributor or send for complete details on this new money-saving pump.

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Gentlemen:
Please send me complete information right away on the new Marlow lightweight Mud Hog pumps.
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SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

Bids: February 28, 1951 (314)

Tunnel Finish

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
WEST 179th STREET TUNNEL
CONTRACT GWB-120,017

Sealed proposals for the interior finish for the West 179th Street Tunnel, New York City, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 2:00 P. M. Wednesday, February 28, 1951, and thereafter in the Auditorium of the Authority at the same address until 2:30 P. M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, February 8, 1951.

Bids: February 26, 1951 (301)

Six Sanitary Sewer Projects at Pine Bluff, Arkansas

Sealed proposals will be received by the City of Pine Bluff, Arkansas, at the office of the Mayor in the City Hall until 10:00 o'clock a.m. on the 26th day of February, 1951, and then publicly opened and read for the furnishing of all plant, labor, materials and equipment and performing all work required for the construction of the following six sanitary sewer projects:

Project No. 1: Trunk line sewer, pumping plant and outfall structure. 4.32 miles of sewer lines. 18" to 42" diameter pipe.
Project No 2: Intercepting sewers, pumping plant and force main. 2.65 miles of sewer lines. 8" to 18" diameter pipe.
Project No. 3: Intercepting sewers, pumping plant and force main. 6.94 miles of sewer lines. 8" to 21 "diameter pipe.
Project No. 4: Intercepting sewers, 2 pumping plants and force main. 7.9 miles of sewer lines. 8" to 21" diameter pipe.
Project No. 5: Intercepting sewers, pumping plant and force main. 12.1 miles of sewer lines. 8" to 21" diameter pipe.
Project No. 6: Alteration of Florida Street pumping station and force main.

All bids shall be submitted on printed forms contained in the book of specifications and contract documents in accordance with the instructions to bidders and will become a part of the proposed contract. Plans and Specifications, the latter containing Instructions to Bidders, Proposal Form, Contract Form, Bond Form, etc., can be examined at the office of the City Clerk at Pine Bluff or the office of A. E. Heagler, Consulting Engineer, 520 National Building, Pine Bluff.

Bidders desiring copies of the Plans and Specifications, with related contract documents, may obtain them from A. E. Heagler, Consulting Engineer, 520 National Building, Pine Bluff, by making a deposit of twenty-five dollars ($25.00) per set with the exception of Project No. 2 which is fifteen dollars ($15.00). The full amount of this deposit will be refunded to each actual bidder (up to a limit of one set on each project to each bidder) upon return of the complete set of Plans and Specifications, in good condition within 10 days after the opening of the bids. To non-bidders, one-half of the deposit will be refunded upon return of the complete set of Plans and specifications within 10 days after the opening of bids.

Each proposal must be accompanied by a surety bond or certified check in the amount of at least five (5%) per centum of the bid, made payable to the City of Pine Bluff, Arkansas. The check or bond is required as a guarantee that if the bid is accepted that the bidder will enter into a contract and execute bond.

Bidders may bid on one or all projects or any combination.

The right is reserved to reject any and all bids, and to waive any technicalities or informalities therein.

Contractors submitting bids must be licensed under the terms of Act 124 of the Acts of 1939 Arkansas General Assembly, as amended, and the contractor's license number must appear on the face of the envelope containing his bid.

George H. Steed, Mayor of the
City of Pine Bluff, Arkansas
A. E. Heagler,
Consulting Engineer

Bids: February 16, 1951 (313)

Connection to New Jersey Turnpike

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
FOUNDATIONS FOR BRIDGES
CONTRACT LT-130.018

Sealed proposals for the construction of foundations for bridges for the Lincoln Tunnel Connection to the New Jersey Turnpike will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 2:00 P. M. Friday, February 16, 1951, and thereafter in the Auditorium of the Authority at the same address until 2:30 P. M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, February 8, 1951.

Bids: February 20, 1951 (311)

Construction of Utility Buildings

PENNSYLVANIA TURNPIKE
COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 A.M. (Eastern Standard Time), the 20th day of February 1951, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 3, North Office Building, State Capitol, Harrisburg, Pennsylvania and immediately publicly opened and read aloud, for the following groups of contracts:

For the construction of Utility Building and Toll Plaza; setting of Toll Booths and erection of Canopy, at the interchange listed below:

GROUP I

Contract No.	Name	Connecting Route	County
337	Allegheny Valley	TR 28	Allegheny
338	Butler Valley	TR 8	Allegheny
339	Perry Highway	US 10	Butler

GROUP II

Contract No.	Name	Connecting Route	County
340	Beaver Valley	TR 18	Beaver
341	Gateway		Lawrence

The work to be performed under this contract consists of the construction of the Utility Building, reinforced cement concrete basement walls, pavements, footings, etc., erection of Toll Booths and Canopy, and all work incident thereto, at points on the Turnpike known as the Interchanges above mentioned and enumerated; not including, however, the Plumbing, the Heating system, the Electrical work, or the Seeding and Sodding; except as noted in the specifications or as shown on the contract drawings.

Copies of plans, specifications, and Contract Documents, are on file and open to public inspection at the Offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania on or about February 6, 1951.

Plans and Contract Documents, including reference drawings, may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of Five ($5.00) Dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE
COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
January 26, 1951

U. S. Government

BIDS FOR REPLATING STEEL BARGES—Memphis District, Corps of Engineers, U. S. Army, P. O. Box 97, Memphis 1, Tenn. Sealed bids will be received until 11:00 a.m., C.S.T., 27 February 1951, and then publicly opened for replating twenty-three steel material barges. Information upon request. (315)

(Continued on page 98)

CONTRACTORS WATCH THIS SECTION
for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

U. S. Government

(Continued on page 97)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3306) will be received by Bureau of Reclamation, Loveland, Colorado, March 8, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Flatiron Power and Pumping Plant and afterbay dam, Estes Park-Foothills Power Aqueduct. The work is situated approximately 9 miles west of Loveland, Colorado. Principal items are approximately: 800,000 cu. yds. of excavation; 260,000 cu. yds. of earth fill in dam; placing 22,600 cu. yds. of riprap; furnishing and placing 2,500,000 lbs. of reinforcement bars; furnishing and handling 26,000 bbls. of cement; 20,000 cu. yds. of concrete; furnishing and erecting 275,000 lbs. of structural steel; and other work. Time allowed for completion varies for separate parts of the work but all of the work must be completed in 745 days. For particulars, address Bureau of Reclamation, Loveland, Colorado; or Building 1-A, Denver Federal Center, Denver, Colorado.

(305)

Department of Commerce, Bureau of Public Roads, January 26, 1951. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., February 27, 1951, for Project 1C2, Baltimore-Washington Parkway, Prince Georges County, Maryland. Reinforced Concrete Bridge for Good Luck Road. Length 0.069 mile. The approximate quantities of the more important items are as follows: 102,500 cu. yd. Excavation, 2,050 cu. yd. Cement Concrete, 275,000 lb. Reinforcing Steel, 390 cu. yd. Stone Masonry and 4,000 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, specifications and proposal forms may be obtained at the address given above. H. J. Spelman, Division Engineer.

(304)

OFFICIAL PROPOSALS

Bids: March 19, 1951 (303)

Sewage Treatment Plant

Sealed bids for the construction of the TOWN OF EAST PROVIDENCE SEWAGE TREATMENT PLANT, EAST PROVIDENCE, RHODE ISLAND, will be received by the Chairman of the Board of Sewer Commissioners, at the Town Hall, East Providence, Rhode Island, until 7:00 o'clock P.M. (EST) on March 19, 1951, and then publicly opened and read at its meeting.

The project consists of complete construction for a primary and secondary sewage treatment plant, including chlorine control building and pump sump, stilling basin and grit chambers, comminutors, two primary tanks (primary sludge sump, primary scum sump and valve pit), chlorine mixing chambers, dosing siphon building (six siphons), six trickling filters, chlorine mixing chamber and drop manhole, two secondary tanks (secondary sludge sump), two digesters, filter building (Administration), manholes, all equipment, piping, heating and ventilating, roadways and landscaping.

The Contract Documents, including drawings and specifications, may be examined on and after February 20, 1951, at the office of the engineers, Charles A. Maguire & Associates, 1015 Turks Head Building, Providence, Rhode Island, and copies may be obtained upon deposit of $75.00 for each set taken. Any bidder, upon returning one such set promptly and in good condition, will be refunded his payment. All other deposits of actual bidders and all deposits of non-bidders, upon return of the documents in good condition within fifteen (15) days after the date of opening of bids, will be refunded with a deduction of twenty-five ($25.00) Dollars for each set taken, to cover the actual cost of production.

Bid security, in an amount of not less than five (5%) percent of the total bid in the Proposal, shall be submitted with the bid and shall be subject to the conditions set forth in the Instructions to Bidders. The Engineer's Estimate is one-and-half million ($1,500,000) dollars.

No bid may be withdrawn for a period of thirty (30) days subsequent to the opening of bids.

The Board of Sewer Commissioners of the Town of East Providence, Rhode Island, reserves the right to waive any informalities in, or to reject, any or all bids.

EAST PROVIDENCE BOARD OF SEWER COMMISSIONERS
[s] Milton H. Irons
Chairman

OFFICIAL PROPOSALS

Bids: March 20, 1951 (302)

Northwest Interceptor Southfield Section

DEPARTMENT OF PUBLIC WORKS
CITY OF DETROIT, MICHIGAN
CONTRACTS PW-1406, 1407, AND 1408

Sealed proposals for Northwest Intercepter—Southfield Section, extending from the southerly end of the existing Southfield sewer in the City of Dearborn to the Rouge River at Bayside Avenue in the City of Detroit, addressed to the Department of Public Works of the City of Detroit, and endorsed "Proposals for Contracts PW-1406, 1407, and 1408" will be received at the office of the Department of Public Works, 104 City Hall, until 2:00 p.m., City of Detroit Time, on Tues., March 20, 1951, at which time they will be publicly opened and read aloud. Any proposal received after the above-mentioned time will be returned to the bidder unopened.

The work included consists of approximately 3.6 miles of 10'-0" diameter sewer under streets and rights-of-way, extending from the southerly end of the existing Southfield sewer in the City of Dearborn to the Rouge River at Bayside Avenue in the City of Detroit. The greater portion of the sewer will be a cylindrical tunnel of concrete or brick construction.

The work is separated into three Contracts, namely, PW-1406, 1407, and 1408. Bidders may bid on any or all of the three Contracts, or may submit a combined bid on any combination of Contracts.

Approximate lineal feet of main sewer in each Contract beginning at the Rouge River is as follows:

PW-1406— 7,092
PW-1407— 5,257
PW-1408— 6,551

Total 18,900 = 3.6 Miles Approximately

The Contract Documents, including Notice to Bidders, Form of Proposal and Agreement, Drawings and Specifications, may be examined and copies may be obtained by making a deposit of $15 per set which sum will be refunded upon the return in good condition of the complete set of Contract Documents within 10 days after receipt of proposals, or if used in submitting a bona fide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than 5 percent of the total bid price as security for the acceptance of the Contract.

Bids: February 20, 1951 (300)

Readvertisement

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 6, SECTION 30

Construction of Route 6, Section 30, Widening Sidewalk Area at Overpass of Lehigh & Hudson River Railroad, Township of Independence, Warren County. 0.297 miles.

Roadway Items

Estimated:

4,800 cu. yds. Borrow Excavation
420 sq. yds. Stone Shoulders
1,140 lin. ft. Reset Guard Fence

Bridge Items

66 cu. yds. Concrete in Structures
21,300 lbs. Structural Steel
2,895 lbs. Rein. Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, February 20, 1951, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway Specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: February 20, 1951 (310)

Heating Systems

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 A.M. (Eastern Standard Time), the 20th day of February 1951, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 3, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud, for the following groups of contracts.

For the construction of Heating Systems for the following five (5) Utility Buildings and Toll Plazas on the Pennsylvania Turnpike as follows:

GROUP I

Contract No.	Name	Connecting Route	County
337-B	Allegheny Valley	TR 28	Allegheny
338-B	Butler Valley	TR 8	Allegheny
339-B	Perry Highway	US 19	Butle

GROUP II

Contract No.	Name	Connecting Route	County
340-B	Beaver Valley	TR 18	Beaver
341-B	Gateway		Lawrence

The work to be performed under the contract is generally in the Utility Buildings and Toll Plazas above mentioned and enumerated. The work does not include the Electrical Systems, the Plumbing systems, nor Building Construction except as noted in the Specifications or as shown on the Contract Drawings.

Copies of plans and specifications and other contract documents, including Reference Drawings, are on file and open to public inspection at the Offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania on or about the 6th of February 1951.

Plans and specifications, including reference drawings, may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for contract drawings and specifications.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
January 26, 1951

(Continued on page 99)

OFFICIAL PROPOSALS

(Continued from page 98)

Bids: March 1, 1951 (297)

Refuse and Sewage Sludge Incinerator, Sewage Treatment Plant, Pumping Station and Sewers

MUNICIPAL AUTHORITY OF THE TOWN OF BLOOMSBURG, COLUMBIA COUNTY, PENNSYLVANIA

Sealed proposals will be received at the Council Chamber, Town Hall, Bloomsburg, Pennsylvania, until 2:00 P.M., EST., March 1, 1951 for furnishing all necessary labor, materials and equipment, and performing all work for the construction of a SEWAGE TREATMENT PLANT, PUMPING STATION AND SEWERS and a REFUSE AND SEWAGE SLUDGE INCINERATOR AND APPURTENANCES, and will there be publicly opened and read at that time. Separate proposals will be received upon two parts of the project as follows:

Refuse and Sewage Sludge Incinerator —including Incinerator Building, Circular (Mechanically Stoked) Furnace or Mutual-Assistance (Manually Stoked) Furnace, Chimney and Foundation, Water Service Line, Electrical Work, Exterior Piping, Concrete Piping, Access Road and Landscaping, Specified Equipment and Appurtenances.

Sewage Treatment Plant, Pumping Station and Sewers—including Control Building, Diversion Manhole, Flash Mixer, Flocculator, two Clarifiers, Chlorine Contact Tank, two Sludge Concentration Tanks, Concrete Piping, Fencing, Electrical Work, Exterior Piping, Access Road and Landscaping, specified equipment and appurtenances; 10,000 lin. ft. 8" to 12" vitrified sewers; 1,000 lin. ft. 6" vitrified sewer house connections, 600 lin. ft. 15" and 24" reinforced concrete pipe; 35 manholes and appurtenances.

Proposals shall be accompanied by certified checks or satisfactory bidder's bonds in accordance with provisions contained in the Specifications and in amount not less than five (5) per cent of the bid total.

Copies of the Contract Documents, including Plans and Specifications, may be seen at the office of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Penna., or at the office of the Authority Secretary Paul Jacobs, Town Hall, Bloomsburg, Pennsylvania; or they may be obtained from the first of the above places upon deposit of the following amounts for each set:

Refuse and Sewage Sludge Incinerator $20.00
Sewage Treatment Plant, Pumping Station and Sewers...$25.00

Full refund will be made to actual bidders for return of one set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same periods, will be fifty (50) per cent of the deposit.

Gannett Fleming Corddry & Carpenter, Inc., Engrs. 600 N. Second Street Harrisburg, Pennsylvania.

Municipal Authority of the Town of Bloomsburg, Bloomsburg, Pennsylvania.

Bids: March 6, 1951 (295)

Sewage Pumping Station

NOTICE OF LETTING

CITY OF WILMINGTON, DELAWARE

Sealed proposals for furnishing materials and labor to construct the Sewage Pumping Station, Junction Chamber and Siphon Chamber, Contract No. 2 of the City of Wilmington's Sewage Treatment Program, will be received from qualified bidders by the Board of Directors of the Street and Sewer Department, Room 251, City Hall, until 2:00 P.M., Eastern Standard Time, March 6, 1951, at which time and place they will be publicly opened and read aloud.

Each proposal shall be submitted in a sealed envelope which shall be marked to clearly indicate its contents. If the proposal is forwarded by mail it shall be enclosed in an additional envelope addressed to the Board of Directors of the Street and Sewer Department, City of Wilmington, Delaware. If submitted other than by mail, it shall be delivered to Room 260, City Hall.

The work embraced under this contract is the construction of a reinforced concrete and masonry Sewage Pumping Station, a reinforced concrete Junction Chamber, a reinforced concrete and masonry Siphon Chamber and other work, complete with all mechanical and electrical equipment. The capacity of the Sewage Pumping Station is approximately 160 mgd.

Each bid shall be accompanied by a certified check in the amount of two (2) percent of the proposal, made payable to the Board of Directors, Street and Sewer Department, City of Wilmington, Delaware.

Drawings and specifications may be obtained from the office of the Board of Directors of the Street and Sewer Department of the City of Wilmington, Room 260, City Hall, or from the office of Whitman, Requardt and Associates, 1304 St. Paul Street, Baltimore 2, Maryland, upon deposit of Twenty-Five Dollars ($25.00) for each set of drawings and specifications, which deposit will be refunded upon return of the plans and specifications in good condition.

The Board of Directors of the Street and Sewer Department reserves the right to reject any or all bids and to accept the bid, which in its opinion best serves the interests of the City.

By order of
Board of Directors of the Street and Sewer Department
Chester R. Jones, President
Attested
James J. Livingstone, Secretary

Bids: February 26, 1951 (296)

Demolition and Removal of Buildings

THE DELAWARE RIVER JOINT COMMISSION
CAMDEN, N. J.

Sealed bids will be received for Demolition and Removal of Buildings on Sites of New Police Building and Toll Houses, Camden, New Jersey, to be identified as Contract No. 12, at the office of the Secretary of The Delaware River Joint Commission, Administration Building, Bridge Plaza, Camden, New Jersey until 1:30 P.M., Eastern Standard Time, Monday, February 26, 1951 and then and there will be publicly opened and read.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified or cashier's check in the sum of $3,000 payable to The Delaware River Joint Commission and drawn upon a National or State bank or trust company having an office either in Philadelphia, Pennsylvania or Camden, New Jersey and the Surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 percent.

The Commission will afford prospective bidders an opportunity to inspect the work to be done.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids; and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

THE DELAWARE RIVER JOINT COMMISSION
Joseph K. Costello,
Secretary

Bids: February 20, 1951 (299)

Broome Type Sluice Gates, Etc.

CONTRACT 423

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, February 20, 1951, for Contract 423, for furnishing, testing and delivering two 6-foot by 14-foot Broome type sluice gates, eight stop shutter frames weighing approximately 150,000 pounds, eight stop shutters weighing approximately 70,000 pounds, a stop shutter lifter weighing about 1,000 pounds, and appurtenances, for installation in the intake chamber of the East Delaware tunnel, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of thirty thousand dollars ($30,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders,

forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, JAMES J. MORAN, Commissioners. Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: February 28, 1951 (298)

Drain Construction

CONSTRUCTION OF A DRAIN FROM ASHLAND STREET TO THE SOUTH BRANCH OF HOOSAC RIVER
NORTH ADAMS, MASSACHUSETTS

Sealed bids for constructing a reinforced concrete drain will be received at the office of the Commissioner of Public Works, City Hall, North Adams, Massachusetts, until 2:00 p.m. Eastern Standard Time on Wednesday, February 28, 1951.

The work includes about 830 ft. of 72-in. diameter drain with manholes, inlet, and transition structures. A portion of the drain is to be installed in tunnel beneath certain tracks of the New York Central and Boston and Maine Railroads. Other portions are to be installed by opencut or jacking methods in private property or property of the New York Central or Boston and Maine Railroad Companies.

Drawings and documents may be obtained at the above office or at the office of Metcalf & Eddy, Statler Building, Boston, Massachusetts, $10 deposit.

Bid security, certified check for $10,000 made payable to the Treasurer of the city of North Adams, Mass., must be submitted with each bid. Successful bidder must furnish 100% performance bond.

Minimum wage rates and Public Work conditions of employment applicable.

The right is reserved to reject any or all proposals or to accept the one deemed most advantageous for the city of North Adams.

HENRY A. GALIPEAU,
Commissioner of Public Works,
North Adams, Massachusetts

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3307) will be received by Bureau of Reclamation, Palmer, Alaska, until March 1, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of six 3-bedroom residences, six 2 bed-room residences, two 10-car garages, streets, and utilities at Eklutna Government Camp, Eklutna Project, Alaska. The work is situated approximately 33 mi. northeast of Anchorage, Alaska, and 14½ mi. south of Palmer, Alaska. Principal items are approximatel: 30,000 cu. yds.; excavation; 6,000 lin. ft., excavation and backfill of pipe trenches; constructing 6,000 sq. yds. asphalt surfacing for streets; constructing six 2-bedroom and six 3-bedroom residences; constructing two 10-car garages, and pump and chlorination house; and other work. Time allowed for completion will be 260 days. For particulars, address Bureau of Reclamation, Palmer, Alaska; or Building 1-A, Denver Federal Center, Denver, Colorado.

(306)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3301) will be received by Bureau of Reclamation, Denver, Colorado, until 2 p.m., March 13, 1951, and then publicly opened for furnishing one 100-ton gantry crane for Flatiron Power and Pumping Plant, Colorado-Big Thompson Project, Colorado. Delivery is desired within 365 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

(307)

(Continued on page 100)

OFFICIAL PROPOSALS

(Continued from page 99)

Bids: February 14, 1951 (285)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law and the Canal Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on Wednesday, February 14, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 5						
C. R. WATERS, Dist. Engr, 65 Court Street, Buffalo, N. Y.						
Erie	M-51-3	City of Buffalo: Railroad Sidings No. 77 & 76 Erie Basin		Reconstruction of Siding Tracks & Turnouts	$500 Plans $10	$9,100
Erie	FAOT 51-1 FARC 51-4 FAST 51-1	Ontario Thruway (William St. to Walden Ave.) Broadway-Depew, S. H. 914; William Street, Co. Rd. 207 Project No. UI-1071(7)	1 93 Cont. 0.70 Access	9"-2 Crse, Cem. Conc. Pavt. 2 at 37' Wide = 1 57 mi. Misc. Work = 0 33 mi. Asp. Conc. Opt. = 0 33 mi. (2 Crse. Cem. Conc. Pavt. on Access = 0 70 mi.) Hy. Sep. 3 Sp. Alpha I-Beam 143' Total Hy. Sep. 4 Sp. Alpha I-Beam 196' Total R. R. Sep. 12 Sp. Alpha I-Beam 1026 84' Total R. R. Sep. 4 Sp. I-Beam 196' Total Alpha Royalty = $4,048 00	$200,000 Plans $50	$3,790,000
Erie	GISP 51-1	Grand Island-South Parkway, Gisp 35-1, Gisp 35-2	2.49	8"-2 Crse. Cem. Conc. Pavt. 24' Wide	$24,000 Plans $15	$440,000
DISTRICT No. 8						
J. S. BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.						
Orange & Rockland	PIP 51 1P	Palisades Interstate Parkway, Pip48-1 & Pip50-1	3 57	8" Cem. Conc. Pavt. 24'-36' Wide	$55,000 Plans $25	$993,000
DISTRICT No. 10						
J. J. DARCY, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.						
Nassau & Queens	RC 51-5	Jerico Turnpike, Pts. 1 & 2, S. H. 1831, S. H. 1940 Massapequa-Glen Cove, S. H. 9017 North Hempstead Turnpike, S. H. 9018 Hempstead-Farmingdale, Pt. 3, S. H. 9055	3 36	White Plastic Traffic Line Marker	$350 Plans $10	$6,500
Suffolk	Cap. S. P. 51-1	Captree State Parkway (So. St. Pkwy to Montauk Hy.) (Cont. No. 2)	2 53 Pkwy. 2 86 Access	8" Cem. Conc. Pavt. 2 at 24' Wide (Access = 8" Cem. Conc. Pavt. = 1 81 mi.; Asp. Conc. = 0 95 mi., Bit. Treated Earth = 0 10 mi.); Hy. Sep. 89'-10-7/8" Rigid Frame Hy. Sep. 2 Span Rigid Frame 68'-9-3/8" Each Hy. Sep. 72'-2-3/4" Rigid Frame RR Sep. 3 Span Rigid Frame 199'-1-3/4" Total	$115,000 Plans $50	$2,095,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law and Canal Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids. February 20, 1951 (282)

Sewerage System and Treatment Plant

THE MIDDLEBURG MUNICIPAL AUTHORITY,
BOROUGH OF MIDDLEBURG,
SNYDER COUNTY, PENNSYLVANIA

Sealed proposals will be received at the Borough Building, Middleburg, Pennsylvania, until 3:00 P.M., E.S.T., February 20th, 1951 for furnishing all necessary labor, materials and equipment, and performing all work for the construction of a SEWERAGE SYSTEM AND A SEWAGE TREATMENT PLANT AND APPURTENANCES, and will there be publicly opened and read at that time. Separate proposals will be received upon two parts of the project as follows:

Sewerage System—including 32,000 lin. ft., 8" and 10" vitrified sewers; 4,600 lin. ft., 6" vitrified sewer house connections; 126 manholes and other appurtenances.

Sewage Treatment Plant — Base Bid (Primary Treatment only)—including Pumping Station, Imhoff Tank and Dosing Tank, Single Open Sludge Bed, Exterior Piping, Electrical Work, Fencing, Access Road and Landscaping, Specified Equipment and Appurtenances.

Alternate Bid (Complete Treatment)—including Pumping Station, Imhoff Tank and Dosing Tank, Trickling Filter, Settling Tank, Double Open Sludge Bed, Exterior Piping, Electrical Work, Fencing, Access Road and Landscaping, Specified Equipment and Appurtenances.

Proposals shall be accompanied by certified checks in accordance with provisions contained in the Specifications and in the following amounts:

Sewerage System	—$20,000
Sewage Treatment Plant	—$ 7,500

Copies of the Contract Documents, including Plans and Specifications, may be seen at the office of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Penna., or at the office of the Authority Chairman James G. Thompson, Jr., First National Bank Building, Middleburg, Penna.; or they may be obtained from the first of the above places upon deposit of the following amounts for each set:

Sewerage System	—$20.00
Sewage Treatment Plant	—$15.00

Full refund will be made to actual bidders for return of one set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same period, will be fifty (50) percent of the deposit.

MIDDLEBURG MUNICIPAL AUTHORITY
Borough of Middleburg,
Pennsylvania

Gannett Fleming Corddry &
Carpenter, Inc., Engrs.
600 N. Second Street,
Harrisburg, Pennsylvania

OFFICIAL PROPOSALS

Bids: February 20, 1951 (286)

The Delaware Memorial Bridge

Sealed proposals for the paving of the highway approaches to "The Delaware Memorial Bridge" over the Delaware River near Wilmington, Delaware will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Continental American Building, Wilmington, Delaware, until 12 o'clock noon Eastern Standard Time, February 20, 1951. Immediately thereafter proposals will be publicly opened and read in the Wilmington City Hall. The work will be let under two separate contracts: Contract No. 13 for the East Approach Paving and Contract No. 15 for the West Approach Paving.

The work involves the following approximate principal quantities:

Contract No. 13 East Approach Paving:

Selected Material (For Pavement Subbase, 8,260 cu. yds.; Cement Concrete Pavement, 4,630 cu. yds.; Wire Mesh Reinforcement, 1,600 squares; Cement Concrete Curb, 4,336 lin. ft.; Bituminous Concrete Pavement, 250 tons; Guard Rail (Steel Beam Type), 1,035 lin. ft.; Topsoil, 11,000 sq. yds.; Railroad Track Construction, Lump Sum.

Contract No. 15 West Approach Paving:

Selected Permeable Material, 20,000 cu. yds.; Selected Material (For Pavement Subbase), 12,300 cu. yds.; Earth Excavation, 1,000 cu. yds.; Cement Concrete Pavement, 7,020 cu. yds.; Wire Mesh Reinforcement, 2,360 squares; Cement Concrete Curb, 6,379 lin. ft.; Bituminous Concrete Pavement, 630 Tons; Waterbound Macadam Base Course, 620 tons; Guard Rail (Steel Beam Type), 5,120 lin. ft.; Topsoil, 63,000 sq. yds.; Cement Concrete Masonry, 140 cu. yds.

Performance of the contract shall begin promptly after execution of the contracts and contracts shall be completed on or before the dates scheduled as follows:

Contract No. 13 East Approach Paving, July 1, 1951.

Contract No. 15 West Approach Paving, July 1, 1951.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms furnished by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check for a sum equal to at least ten (10) per cent of the total amount of the proposal.

The Contracts will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

The Plans and Specifications and other contract documents may be examined at the office of the Director, Delaware Crossing Division, and at the office of the Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y. One complete set of the Plans and two copies of the Specifications for these contracts may be obtained from the Engineers after February 1, 1951 upon payment of $15.00. Any prospective bidder who has made such a deposit may secure extra blueprint copies of the Plans upon payment of 50 cents per drawing, and extra copies of the Specifications upon payment of $3.00 per copy.

State Highway Department
By: J. Gordon Smith,
Chairman

W. A. McWilliams, Director
Delaware Crossing Division
Wilmington, Delaware January 24, 1951

U. S. Government

Department of Commerce, Bureau of Public Roads, January 16, 1951. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., FEBRUARY 20, 1951, for Project 1G3, Baltimore-Washington Parkway, Anne Arundel County, Maryland. Two Reinforced Concrete Rigid Frame Structures and Approaches in Fort Meade Area. Length 0.047 mile. The approximate quantities of the more important items are as follows: 23,000 cu. yd. Excavation, 2,000 cu. yd. Cement Concrete, 240,000 lb. Reinforcing Steel, and 20,000 lb. Structural Steel. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, specifications and proposal forms may be obtained at the address given above. H. J. Spelman, Division Engineer. (289)

(Continued on page 101)

OFFICIAL PROPOSALS

(Continued from page 100)

(308)

Government of the United Mexican States, Secretariat of Hydraulic Resources

REQUEST FOR BIDS No. I-51-1

A Request for Bids is extended to contractors established under Mexican laws, to submit proposals for the construction, as per contract, of the earthwork and structures of Canal Alto, Irrigation District of the Yaqui River, State of Sonora, Mexico, including lateral channels and drains.

Bidders must have experience in irrigation works, vouching for same with assignments that they may have performed and where they may have rendered a work of satisfactory quality and within the periods stipulated. Bidders also must demonstrate that they have available the necessary equipment to carry out and conclude satisfactorily the undertaken sought through this request for bids within a period expiring on October 16, 1952.

Interested parties may apply at the Secretariat of Hydraulic Resources, Paseo de la Reforma Number 69, Mexico City, Mexico (Department of Contracts for Irrigations Works and River Control), for registration and for the Specifications and Drawings Booklet, the price of which is Ps. 200.00, Two Hundred Pesos, Mexican Currency.

The bids must meet the requirements as stipulated in the specifications; and must be accompanied with a certificate check or certificate deposit voucher in the amount of Ps. 1,000,000.00, One Million Pesos, Mexican Currency, to guarantee the trustworthiness of the proposal, and must be submitted precisely at 12.00 noon of the 12th day of March, 1951, in the offices of the Secretary of Hydraulic Resources, Paseo de la Reforma 69, Mexico City, Mexico, at which time the bids shall be open in the presence of the undersigned and of the interested parties in attendance at this act.

Mexico City, Mexico, February 1, 1951.

THE SECRETARY OF HYDRAULIC RESOURCES
HEAD OF THE ENGINEERING DEPARTMENT FOR IRRIGATION
Adolfo Orive Alba — Aurelio Benassini

(The foregoing is a translation of the official invitation for bids, published in Spanish language in the Mexican press on the 1st, 2nd, and 3rd days of February, 1951. For the information of interested bidders it is hereby disclosed that the proposed work consists of the construction of approximately 47 miles of main channel, including its structures, with a capacity of 3880 cubic feet per second in its first 25 miles, and approximately 40 miles of lateral channels and drains).

Bids: February 20, 1951 (312)

Electrical Systems

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 A.M. (Eastern Standard Time), the 20th day of February 1951, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 3, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud, for the following groups of contracts.

For the construction of Electrical Systems for the following five (5) Utility Buildings, Toll Plazas and Interchanges on the Pennsylvania Turnpike as follows:

GROUP I

Contract No.	Name	Connecting Route	County
337-C	Allegheny Valley	TR 28	Allegheny
338-C	Butler Valley	TR 8	Allegheny
339-C	Perry Highway	US 19	Butler

GROUP II

Contract No.	Name	Connecting Route	Ceunty
340-C	Beaver Valley	TR 18	Beaver
341-C	Gateway		Lawrence

The work to be performed under the contract is generally in the Utility Building, Toll Plaza and Interchange above mentioned and enumerated. The work does not include the Plumbing Systems, the Heating Systems, nor Building Construction except as noted in the Specifications or as shown on the Contract Drawings.

OFFICIAL PROPOSALS

Copies of plans and specifications and other contract documents, including Reference Drawings will be on file and open to public inspection at the Offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania on or about February 6, 1951.

Plans and specifications, including reference drawings, may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for contract drawings and specifications.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
January 26, 1051

Bids: February 20, 1951 (309)

Plumbing Systems

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 A.M. (Eastern Standard Time), the 20th day of February 1951, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 3, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud, for the following groups of contracts.

For the construction of Plumbing Systems for the following five (5) Utility

OFFICIAL PROPOSALS

Buildings and Toll Plazas on the Pennsylvania Turnpike as follows:

GROUP I

Contract No.	Name	Connecting Route	County
337-A	Allegheny Valley	TR 28	Allegheny
338-A	Butler Valley	TR 8	Allegheny
339-A	Perry Highway	US 19	Butler

GROUP II

Contract No.	Name	Connecting Route	County
340-A	Beaver Valley	TR 18	Beaver
341-A	Gateway		Lawrence

The work to be performed under the contract is generally in the Utility Building and Toll Plaza above mentioned and enumerated. The work does not include the Electrical Systems, the Heating Systems, nor Building Construction except as noted in the Specifications or as shown on the Contract Documents.

Copies of plans and specifications and other contract documents, including Reference Drawings will be on file and open to public inspection at the Offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania on or about 6 February 1951.

Plans and specifications, including reference drawings, may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposit to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for contract drawings and specifications.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
January 26, 1951

EMPLOYMENT

(Continued on pages 102, 103, & 104)

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

STATE OF Maryland has openings for Civil Engineer II in the Department of Public Improvement. Position requires college degree in civil engineer, including courses in sanitary engineering; plus three years' experience in survey work, including one year in a supervisory position; plus eligibility for Maryland registration as a land surveyor. Merit System Position. Standard Salary Scale—$4200-5250 a year. Contact the Office of the State Employment Commissioner, 31 Light Street, Baltimore 2, Maryland, by March 15, 1951.

POSITIONS VACANT

ENGINEERS WANTED for industrial fire prevention field work by national insurance organization with offices in most major cities. These are permanent jobs with a real future, but candidates should appreciate that extensive away-from-home travel is involved. Age 26-40 preferred. P-8306, Engineering News-Record.

GENERAL CONSTRUCTION Superintendent, Project and Field Engineers, Piping Superintendent, and Carpenter Superintendent wanted, experienced in Hydroelectric dam and powerhouse construction, work located in Latin America, advise age, experience, reference, and availability, address P-8683, Engineering News-Record.

POSITIONS VACANT

CONSTRUCTION SUPERINTENDENT for Mid-Western General Contractors. Must be capable of supervising all types of construction work. Excellent opportunity for one who qualifies. Reply stating age, experience and references to Perron Construction Company, 6525 Lincoln Avenue, Detroit 2, Michigan.

CIVIL ENGINEERING Technicians: (Laboratory and Field experienced in soils, concrete, asphalt. Structural Engineers: foundation design. Drillers: soil borings-diamond drilling. Projects located in the East, Midwest, South. Furnish complete information including age, education, experience and salary. Toledo Testing Laboratory, Toledo, Ohio.

WANTED: STRUCTURAL Engineers, Mechanical Engineers and Industrial Architects; some defense work. Seelye, Stevenson & Value, 101 Park Avenue, New York, N. Y.

STRUCTURAL DESIGNERS and Draftsmen wanted by Baltimore consultant for indeterminate reinforced concrete and steel structures. Good salaries, paid overtime and vacations. State Education, detailed experience, tentative reporting date and salary requirements in first letter. P-8815, Engineering News-Record.

ENGINEER, EXPERIENCED as draftsman in detailing industrial piping and in field supervision in connection with mechanical installation work for sewage treatment plant. Write P. O. Box 1074, Roanoke, Va.

POSITION OPEN for engineer or construction man familiar with dock building and pile driving, who lives in the Newark-Elizabeth, N. J. district. Write P-8847, Engineering News-Record.

(Continued on page 102)

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.
EMPLOYMENT WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.25 a line an insertion.

INFORMATION.

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS received by February 9th at the New York Office, 330 W. 42 St., N. Y. 18, will appear in February 22nd issue subject to space available.

Positions open for

ENGINEERS

Process (Chemical) Engineers
Construction Engineers
Project (Mechanical) Engineers

To Work On Petroleum, Petro-Chemical and Chemical Projects

Write in complete detail, giving age, positions held, references, education, salary expected. Personal interview can be arranged.

Address Personnel Department

E. B. BADGER & SONS COMPANY
75 Pitts St., Boston, Mass.

1—Sr. Electrical Engineer
  5 yrs. experience in communications systems (telephone, teletype, radio, remote controls, etc.).

1—Sr. Electrical Engineer
  5 yrs. experience power distribution and interior electrical wiring.

3—Jr. Electrical Engineers — Recent Graduates Recognized Engineering Schools
  Outstanding opportunity for young engineer.

5—Electrical Draftsmen
  Minimum of 2 yrs. experience electrical detailing.

PALMER & BAKER, INC.
P. O. Box 346 Mobile, Alabama

CONTRACTOR'S ASSISTANT

With engineering experience for general contractor established in New York City 22 years specializing in bridge reconstruction and public works projecis where structural steel is major item. State particulars. Opportunity.

P-8857, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

ESTIMATOR

Permanent position for a man approximately 35 years old with large Pittsburgh firm of Engineers and Constructors. Must be thoroughly experienced in Commercial, Industrial and Institutional building construction. Salary limited only by applicant's ability and experience. Engineering background preferred—not essential. Submit information stating experience, education, age and availability. Replies confidential.

P-8870, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

SALES ENGINEER

ENGINEERING and CONSTRUCTION

Large firm of Engineers and Constructors has opening in Pittsburgh for qualified Sales Engineer and Executive with contacts and recent experience in selling engineering and construction services. Submit complete information stating experience, education, personal contacts, references, date available and salary requirements. All replies will be treated confidentially.

SW-8869, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

CONSTRUCTION SUPERINTENDENTS

For building and concrete work in vicinity of Cincinnati. Also for work near Cleveland. Write full particulars or arrange for interview.

DUFFY CONSTRUCTION CORP.
540 Terminal Tower, Cleveland 13, Ohio

EXCEPTIONAL OPPORTUNITY FOR FOREMAN

Established firm is seeking a first class man thoroughly capable of handling details involved in running a fair sized ornamental and miscellaneous iron shop. To take complete charge. Excellent offer for right man.

P-8759, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

Montgomery County, Maryland, has many openings for Civil Engineers. Needs Highway Engineering Draftsmen, $3080-$4488; Map Draftsmen, $3080-$3696; Highway Inspectors, $3080-$4488; Associate Engineers, $4000-$5280; Highway Design Engineer, $4800-$5760; Traffic Engineer, $5600-$7500; and Chief Planning Engineer for Directing Preparation and Development of Land Use Plans, starting salary up to $8000.

Write or Wire PERSONNEL OFFICE,
Court House, Rockville, Maryland.

---

60 ENGINEERS and DRAFTSMEN

Ready to aid you in your expansion program, whether it be structural, concrete, piping, mechanical, etc.

H. G. BURR, INC.
BURR BUILDING
247 Water St. Pittsburgh, Pa.

STRUCTURAL ENGINEERING

A Course of Instruction by Mail

FOR FORTY YEARS our courses have helped thousands to better positions and to pass State Board Examinations.

Information sent without obligation. Write today.

WILSON ENGINEERING CORP.
College House Offices - Dept. E.
Harvard Sq. Cambridge, Mass.

POSITIONS VACANT

(Continued from page 101)

FIELD ENGINEER for hydraulic Division of Electrical Department large Copper Company, Chile, South America. Three-year contract, transportation both ways and salary while traveling paid by company. In reply give complete details. P-8876, Engineering News-Record.

SENIOR FIELD Electrical Engineer to work directly under Assistant Chief Electrical Engineer, to supervise work done by District Electrical Foremen in various camps, Concentrator Electrician etc. Three-year contract, transportation both ways and salary while traveling paid by company. In reply give complete details. P-8878, Engineering News-Record.

DESIGN DRAFTSMAN for Mechanical Department large Copper Company Chile, South America. Thorough experience required design, detail, and checking of reinforced concrete and structural steel buildings, bridges, foundations and retaining walls. Experience mechanical design desirable but not essential. Graduate engineer with some practical experience U. S. preferred. Three-year contract, transportation both ways and salary while traveling paid by Company. In reply give complete details. P-8874, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

PROJECT MANAGER—General Supt. 25 years diversified experience in all types of construction. Six years in Latin America. Highest references. PW-8730, Engineering News-Record..

CIVIL ENGINEER licensed, 35 years' experience design, construction heavy and light structures, housing. Estimating specification contract negotiations, costs, office routine. Wishes responsible position in East, but will go anywhere in U.S.A. if conditions are right. PW-8755, Engineering News-Record.

GENERAL FIELD Superintendent. Age 49. 30 years experience sewers, drainage, foundations, pile driving, heavy concrete bridges, overpasses, defense plants, army camps, sober available February first. PW-8785, Engineering News-Record.

GENERAL CARPENTER-Foreman 30 years on concrete dams, industrial plants, steel mills, hospitals, schools and bridges. Good union connections, available soon. PW-8693, Engineering News-Record.

(Continued on page 104)

ENGINEERING

We anticipate increasing our engineering organization during the next several months for the design of Oil Refinery, Blast Furnace, Open Hearth, Steel Mill and Power Plants.

These men should be qualified as draftsmen, designers, checkers or higher engineering skills on design of piping, instrumentation, pressure vessels, structural steel, concrete, platework, heavy mechanical equipment and electrical.

If you are interested and have engineering design experience on this class of work, write to us for a personnel form for prompt consideration of your qualifications.

This work is in our Cleveland office, and is on a 5-day, 45-hour week basis, with time and one-half over 40 hrs; also, vacation and holiday pay. Steady employment and a good opportunity with a good organization.

ARTHUR G. McKEE & CO.
2300 Chester Ave.
CLEVELAND 1, OHIO

Structural Designers and Detailers

with at least three years experience wanted by well-established steel plant engineering and contracting firm specializing in constructing open hearth furnaces. Apply by mail.

SUITE 300,
610 Smithfield Street Pittsburgh 22, Penna.

HYDRAULIC ENGINEERS

Qualified by actual experience to make basic engineering determinations and to prepare studies, estimates, specifications, and designs for Hydroelectric projects.

Salaried position commensurate with experience; location in Boston. In reply please state educational qualifications, work experience, and salary desired.

Present employers will not be contacted before personal interview.

Stone & Webster
ENGINEERING CORPORATION
49 Federal St., Boston 7, Mass.

WANTED

MECHANICAL ENGINEER

Established consulting firm, New York area, desires Mechanical Engineer, capable supervising starting, testing, operating and correcting troubles of steam-electric station equipment. Plant betterment work involving considerable travelling. Technical education, and plant operating or betterment experience required. State education, experience and salary desired.

P-8758, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ENGINEERS

ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical	Power, lighting layouts and electrical controls.
Mechanical	Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.
Structural	Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

The Ferguson Bldg. 1783 E. 11th St.
Cleveland 14, Ohio

19 Rector Street
New York 6, N. Y.

CONSTRUCTION MEN WANTED IMMEDIATELY

Applications desired by large nationally known heavy works contractor headquartering Midwest for several positions as Area Construction Managers or Assistants, also Construction Project Managers and Superintendents on competitive bid, negotiated, or fee projects located generally Eastern half of U. S. A. or Overseas.

We require only men of mature and successful engineer construction experience and high degree of organizing, administrative ability, with good health and energy. Thorough knowledge of men, methods and machinery, specializing grading, structures, surfacing, highways, railroads, dams, airbases, etc.

Permanent positions with good salaries and away from home expenses with substantial commission bonus prospects to men of unusual ability. Please submit complete resume elaborating on experience, education, salary required and date of availability. Will acknowledge applications.

P-8666, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ENGINEERS, DESIGNERS, DRAFTSMEN

—All Grades

Good positions open in San Francisco and Los Angeles for experienced engineers, draftsmen and designers for work on chemical, industrial and power projects. Refinery, process, mechanical, structural and electrical engineers are needed; also qualified layout men, designers and detailers for electrical, structural, mechanical and piping squads.

Write stating experience, education, age, references, salary expected. Applications held in confidence; prompt consideration.

BECHTEL CORPORATION

PERSONNEL DEPARTMENT

ROOM 11
220 BUSH STREET
SAN FRANCISCO, CALIF.

DESIGNERS

Experienced in hydro electric power plants.

CORBETT-TINGHIR CO.
39 Broadway N. Y. 6, N. Y.

DESIGNERS, DRAFTSMEN - ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.

P-8539, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED

(Continued from page 102)

SUPERINTENDENT CONSTRUCTION 25 years broad industrial commercial institutional projects. Engineer. Anywhere. Salary $175 net. PW-8752, Engineering News-Record.

ENGINEER, EXECUTIVE. Member ASCE. member ASME. Twenty-eight years experience with contractors, Federal Government and in private practice on planning, design and administration of heavy engineering construction for large scale developments; hydro-electric flood control, steam-electric, bridges, industrials. Good organizer and administrator. Capable of assuming overall project responsibility. Registered engineer in several states and National Bureau certification. Seeks position commensurate with qualifications in engineering or associated fields. PW-8712, Engineering News-Record.

CONSTRUCTION ENGINEER: 17 years experience—heavy construction United States and South America—Speak construction Spanish—Will go anywhere. PW-8814, Engineering News-Record.

SEWER CONSTRUCTION Foreman 45, 20 years experience, Italian; desires to work for a well tempered employer. PW-8827, Engineering News-Record.

CIVIL ENGINEER, registered, 13 years experience in photogrammetry, topography, traverse, triangulation, property surveys, construction layout. Prefer small town location or within commuting distance. PW-8823, Engineering News-Record.

REGISTERED C.E. 20 years experience in design and construction of roads, bridges, streets, sewers, airports, etc. Desires permanent position. PW-8794, Engineering News-Record.

MASTER MECHANIC, Equipment Supt., Mechanical Operating Engineer, over twenty-five years' experience with erection, repair and maintenance of heavy industrial, power house, pumping stations and marine equipment. Desires permanent position. PW-8810, Engineering News-Record.

GENERAL SUPERINTENDENT, 28 years experience on Sewers, Dams, Tunnels, Water, Dirt Moving, Bridges, Concrete. PW-8809, Engineering News-Record.

CHIEF ENGINEER mechanical and structural, employed, desires executive position in modern corporation engaged in metal fabrication and manufacturing machines. Administrate all departments. Top-rank references and proof of good record. PW-8808, Engineering News-Record.

OFFICE MANAGER-Accountant — Familiar with field and office heavy construction detail. All phases General and Cost Accounting, payrolls, taxes, etc. Will relocate. PW-8839, Engineering News-Record.

GRADUATING JUNE, C.E. with minor in Engr. Geology. Some heavy constr. experience. Heavy constr. preferred. PW-8841, Engineering News-Record.

PLANT LAYOUT Engineer-Draftsman, age 47, experienced designer of Piping, Processing Equipment, Mechanical Installations and Structures. Can handle complete project. Address PW-8848, Engineering News-Record.

DESIGN ENGINEER, B.S. and M.S. in C. E. New York State license P.E. and L.S. Assoc. Mem. ASCE. 25 years in major design: bridges and port structures, sanitation facilities, industrial plants and military bases including buildings and utilities. Experienced in complex design methods in consultant and contractor organizations, resourceful, accustomed to independent action. Employed but available for responsible design connection. PW-8865, Engineering News-Record.

ASST. SUPT. Avail. March 1st. 14 years experience Industrial Bldgs, Office Bldgs, Dorms, Bridges, Heavy Structures as Asst. Supt. Cost Engr. Office Manager, Purchasing, Layout. Age 36. Married with 3 children. Anywhere U. S. Present location Maine. Salary $150.00. PW-8862, Engineering News-Record.

ESTIMATING SERVICE

Any Trade and Type of Project
Literature and Sample on request
Construction Survey Cooperative
101 Park Ave., New York 17, N. Y.
MUrray Hill 5-7317 Founded 1922

WANTED—SUBCONTRACT

Utilizing 3 compartment aggregate, bulk cement bins, batch and hi-discharge mixer trucks. Personnel experienced on heavy construction.

J. H. OGORCHOCK
Brookville, Pa.

WANTED

GOOD USED DIESEL
ELECTRICAL or MECHANICAL
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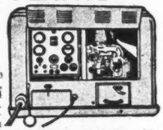

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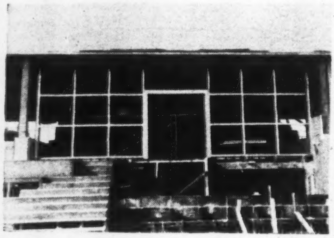

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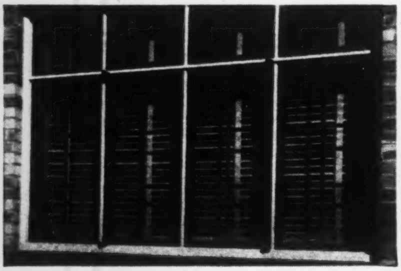

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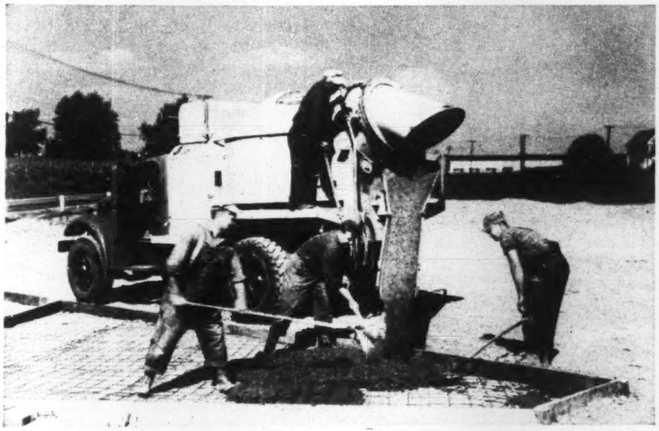

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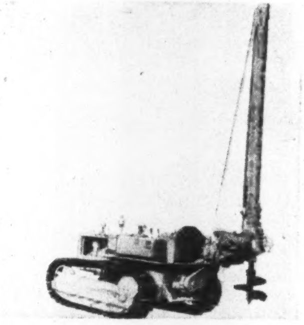

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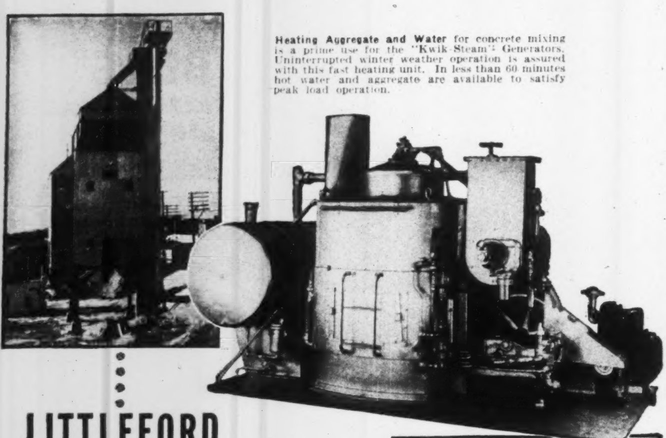

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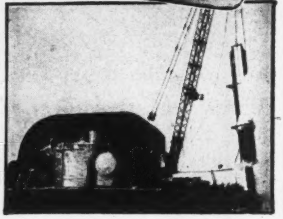

Pile Driving Contractors have found the "Kwik-Steam" Generators the last word in efficiency and economy. "Kwik-Steam" Generators cuts labor cost and speeds up operations. From a cold start, the hammer can be working in a few minutes. Steam is only produced when it is needed. "Kwik-Steam" Generators can be furnished with a steam chest if desired.

These "Kwik-Stem" Vapor Generators are the most modern steam producing units ever offered to the Construction Industry. **From a cold start the Littleford "Kwik-Stem" Generators will produce steam in two minutes time.** Designed for low cost operation and fast heating, these units will save Ready Mixed Concrete Plants, Asphalt Plants, Pile Driving Contractors as much as 50% on labor and fuel. Automatically controlled, the "Kwik-Stem" Generators will operate only when steam is needed: the Burner cycles off when steam is not needed. Once the "Kwik-Steam" Generators are started, automatic controls take over and keep a predetermined pressure at all times. Safety in operation is achieved by fool proof controls. Since the "Kwik-Steam" Generators burn low cost fuel oil no hard fuels are required as in the case of hand fired boilers. Other uses for the "Kwik-Steam" Generators are Steaming Aggregate Cars, Water Heating, Operating Steam Hoists, Cleaning Equipment, Heating Asphalt Tank Cars along side Asphalt Plants and Curing Concrete Blocks. "Kwik-Steam" Generators are made in sizes from 500 lbs. to 4000 lbs. of steam per hour.

LB BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE 1900

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Structural Steel
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General Office and Shops
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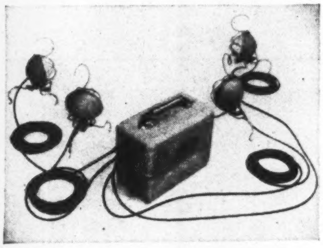
Subsidiary—Barium Steel Corporation

unit 16-in. wide and 40 in. long. Featuring simplicity of operation, the JC-20 uses steam from a built-in high-pressure Speedylectric boiler. Boiler water acts as the electric-resistance heating element. Hence, no current passes and no steam is generated if there is no water.—LIVINGSTONE ENGINEERING CO., 100 GROVE ST., WORCESTER 5, MASS.

Press-on hose coupling

Press-Lock hydraulic hose coupling employs as its anchoring principle the fact that rubber in mass form, while not compressible, can be displaced under pressure. The coupling consists of three parts—the corrugated stem, sleeve extending full length of the stem, and locking ring between collar and anchoring flange. Attaching the coupling unites the sleeve, ring, and nipple into a solid unit, and displaces the entire hose wall. Made of steel, coupling is available in sizes to fit 3/16 to 2-in. inside-diameter hose.—MULCONROY CO., 5321 JEFFERSON ST., PHILADELPHIA 31, PA.



Portable lighting system

Low-voltage unit is driven by compressed air. The Joy-Lite will develop an output of 250 to 280 watts with air consumption not exceeding 25 cfm. Generator is mounted in a steel box designed to afford protection against dirt and dripping water. Lamps have tripod swivel bases which can be used as column clamps, and hooks which serve as hangers. The unit weighs 48 lb.—JOY MFG. CO., HENRY W. OLIVER BLDG., PITTSBURGH 22, PA.

Accident recorder

Compact photographic unit provides all equipment to take on-the-spot accident photographs. It is packed in a compact self-mailing case, and has brackets and screws for mounting in cab, body, or trunk of any vehicle. Kit

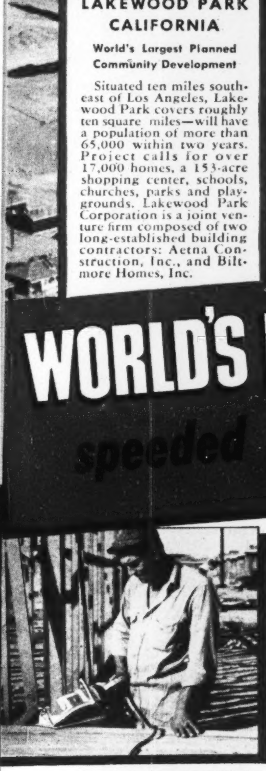
(*Continued on page 115*)

LAKEWOOD PARK CALIFORNIA

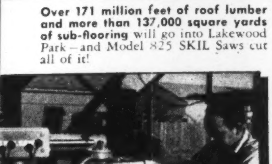
World's Largest Planned Community Development

Situated ten miles southeast of Los Angeles, Lakewood Park covers roughly ten square miles—will have a population of more than 65,000 within two years. Project calls for over 17,000 homes, a 153-acre shopping center, schools, churches, parks and playgrounds. Lakewood Park Corporation is a joint venture firm composed of two long-established building contractors: Aetna Construction, Inc., and Biltmore Homes, Inc.

WORLD'S BIGGEST Home Building PROJECT speeded up with 365 SKIL Saws!



Over 171 million feet of roof lumber and more than 137,000 square yards of sub-flooring will go into Lakewood Park—and Model 825 SKIL Saws cut all of it!



For top production sawing at Lakewood Park, SKIL Radial Saw pre-cuts and gang-cuts easily, accurately and at top speed!

SKIL Saws used exclusively to build 6,000 homes in 245 days . . . with 11,000 more to come!

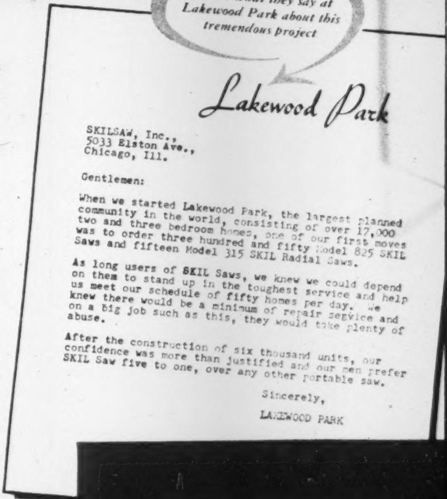
It's smart to standardize on SKIL Saws! Performance-proved to produce under pressure!

Talk about field-proved performance! Imagine—hundreds of days of steady construction! Hundreds of carpenters working at peak efficiency; against time; under all conditions. Saws constantly changing hands . . . cutting wet wood and dry . . . absorbing weeks of punishment in a single day! And yet SKIL Saws stayed on the job—kept delivering day-in, day-out . . . month after month. *What better test can you think of for any saw?*

Follow the example of Lakewood Park builders and other prominent builders everywhere. *Standardize on SKIL Saws* on your next job! You'll save important time and money through fast, easy interchangeability of parts; minimum blade inventory; quick efficient repair service from a near-by SKIL Service Branch . . . *and famed SKIL Saw performance.*

Ask your SKIL Tool Distributor to demonstrate these powerful, easy-to-handle, *performance-proved* SKIL Saws today!

Here's what they say at Lakewood Park about this tremendous project



Lakewood Park

SKILSAW, Inc.,
5033 Elston Ave.,
Chicago, Ill.

Gentlemen:

When we started Lakewood Park, the largest planned community in the world, consisting of over 17,000 two and three bedroom homes, one of our first moves was to order three hundred and fifty Model 825 SKIL Saws and fifteen Model 315 SKIL Radial Saws.

As long users of SKIL Saws, we knew we could depend on them to stand up in the toughest service and help us meet our schedule of fifty homes per day. We knew there would be a minimum of repair service and on a big job such as this, they would take plenty of abuse.

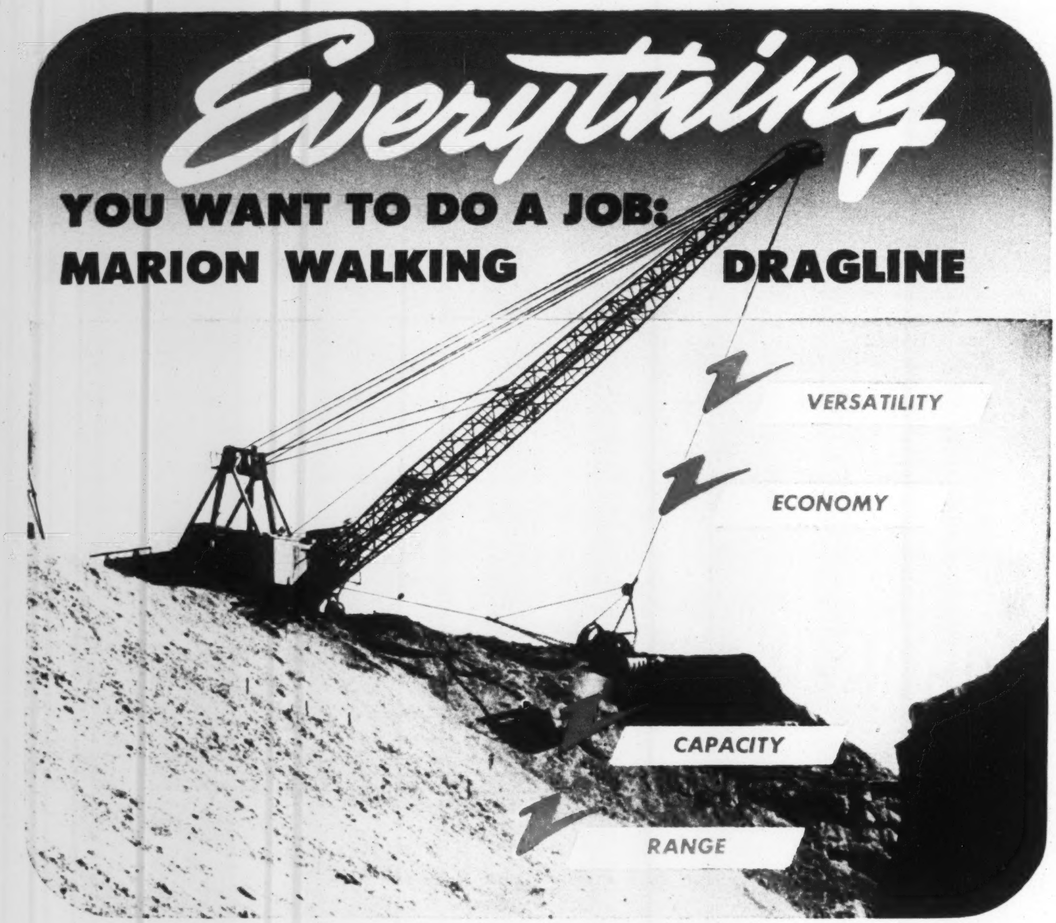
After the construction of six thousand units, our confidence was more than justified and our men prefer SKIL Saw five to one, over any other portable saw.

Sincerely,

LAKEWOOD PARK

SKIL

SKIL Products are made only by
SKILSAW, INC.
5033 Elston Avenue • Chicago 30, Ill.
Factory Branches in Principal Cities
In Canada: SKILTOOLS, LTD., 66 Portland St., Toronto, Ont.

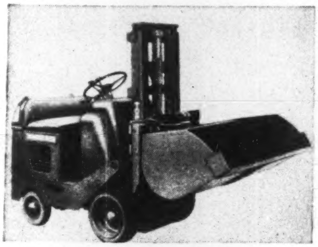


A rare combination of performance features is available in MARION Walking Draglines. . . . Before you buy excavating equipment for drainage, reclamation, stripping, levee, heavy construction or sand and gravel work, first learn—without obligation—how MARION Walkers might do the job better, faster and more economically. . . . MARION Walkers are making proud records on many jobs across the country. They work and travel easily in soft footing. For example, the MARION 7200 pictured here is on a construction project, can swing a 7 cu. yd. load up to 230 feet and dump 135 feet above grade. A 5 cu. yd. load can be swung 305 feet, raised 137 feet.

MARION Walkers in three sizes (5 cu yds. to 30 cu. yds.), are built in the MARION tradition—expertly designed, made of the finest materials and incorporating many extra-value features that make you glad, year after year, that you chose a MARION. . . . Your nearest MARION sales office will be happy to give you the details. Or write to the factory for information.

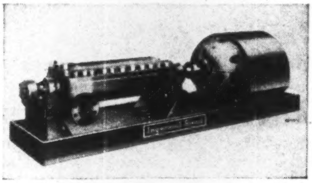
MARION POWER SHOVEL CO.
MARION, OHIO, U. S. A.
OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES
from [illegible] cu. yd. to [illegible] cu. yds.

contains an Alrax camera, flash attachment, flash bulbs, simple instructions, and record forms. The kit is designed primarily for use in lowering liability and operating costs. Complete services in connection with developing pictures, maintenance of equipment, and negative files are handled by: AUTOMOTIVE LIABILITY REDUCTION ASSN., INC., 11 W. 42ND ST., NEW YORK 17, N. Y.



Hydraulic-scoop attachment

Actuated by a two-way hydraulic cylinder the hydraulic-scoop attachment tips 45-deg forward for dumping, and 30-deg backward for carrying. Quick-detachable couplings in the hydraulic line and simplified suspension from the fork support shaft makes the accessory readily interchangeable. Available in capacities ranging from 9 to 17 ft.—TOWMOTOR CORP., 1226 E. 152ND ST., CLEVELAND 10, OHIO.



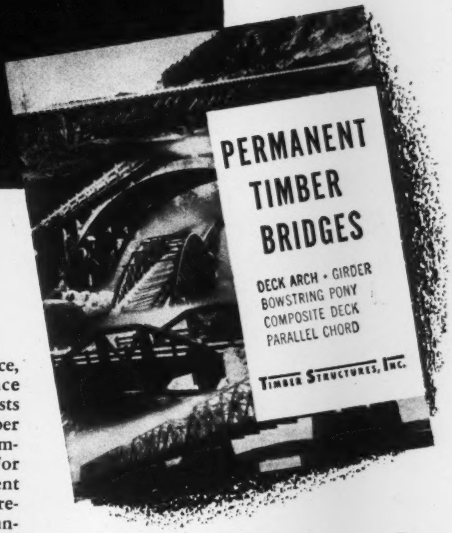
Multi-stage centrifugals

Class HMTA pumps are designed for high-pressure applications to 1,200 psi and capacities to 1,600 gpm. They are built in 3, 4, 5, and 6-in. sizes with from 3 to 9 stages. Features include: Cylindrical bore, horizontally split casing, and compact Unit-Type rotor assembly. Pressure differential between successive stages is sealed by corrosion-resistant cast-iron or alloy-steel piston rings around the outer diameter of the channel rings.—INGERSOLL-RAND CO., 11 BROADWAY, NEW YORK 4, N. Y.

Hydro unloading valve

Hydraulic unloading valve features a balanced piston design for close accurate fit in the valve bore. The Model 8826 is used in oil hydraulic circuits

(*Continued on next page*)



The way to Low Bridge Costs...with permanent bridges of engineered timbers

You get years of service, minimum maintenance and genuinely low costs when you install a timber bridge fabricated by Timber Structures, Inc. For truly these are permanent bridges, designed to remain fully serviceable until after changing traffic conditions have made the site obsolete.

Glued Laminated Members for Dimensional Stability

Primary structural members of Timber Structures bridges are glued laminated timbers, formed of select kiln dried Douglas fir, joined under pressure by permanently waterproof glues stronger than the wood itself. Thus literally "shop grown" to the exact specifications of the designer, these members are not subject to dimensional changes and seasoning action.

Before shipment and erection these members are given an approved preservative treatment for lasting protection against damage by weather and insects. All stressed connections are made with ring connectors or shear plates, assuring maximum strength and durability.

Ask for Literature on Timber Bridges

An illustrated folder has just been published showing the five basic bridge types of Timber Structures, Inc. — deck arch, bowstring truss, parallel chord truss, composite deck and girder. Typical applications are shown, together with detail drawings of each type. A copy of this folder is yours for the asking. Get it from your nearest Timber Structures representative, or fill in and mail coupon.

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Timber Structures, Inc., of California, Oakland, Calif.
Timber Structures of Canada, Ltd., Peterborough, Ont.
Local Representatives Coast to Coast

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P. O. Box 3782-C, Portland 8, Oregon
Please send folder on Engineered Timber Bridges to
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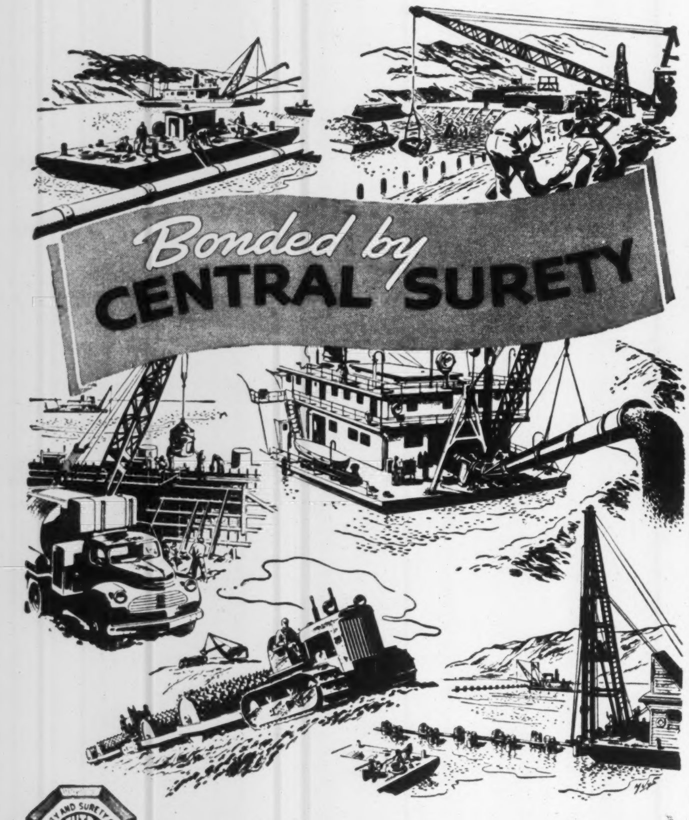

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Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

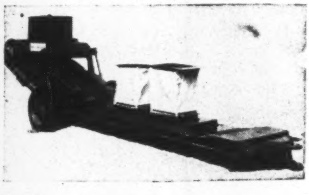
to unload one part of the circuit at no back pressure to the tank. Valve is operated by pilot pressure from some other part of the circuit. Available in sizes ¼ to 1½, in two pressure ranges of 50 to 150 psi, and 500 to 1,500 psi. —RIVETT LATHE & GRINDER, INC., BRIGHTON 35, BOSTON, MASS.

Automatic nailer

Magnetic-fed hand-driven automatic nailer is designed for fast, accurate nailing. Flat-head nails or brads loaded in the hopper are delivered automatically so that every mallet blow drives a nail. Simple adjustments switch from flush to set nailing, and from common nails to floor brads. All working parts are enclosed.—HOLT MFG. CO,. 651 TWENTIETH ST., OAKLAND 12, CALIF.

Heavy-duty diesel engines

New line of heavy-duty diesels consists of six models from 145 to 220 hp. These engines are designed to operate at continuous speeds up to 1,400 rpm permitting their use with torque-converter power transmission. Murphy design features include unit fuel injection, four valves per cylinder, and hydraulic servo-type governor.—MURPHY DIESEL CO., 5311 W. BURNHAM ST., MILWAUKEE 14, WIS.



Bulk-cement conveyor

Accessories adapt the Model 358 undercar aggregate car unloader and the Models 362 and 363 portable belt conveyors to handle bulk cement and

(*Continued on page 118*)

SMITH Impulse Turbines

FOR HIGH HEADS, and wherever the head and water quantities available prohibit the use of reaction-type machines. Ideal for installations in remote localities because of the ease with which the completed unit may be transported. The simplicity of design, facility of operation and greater dependability remove the necessity of skilled operators and attendants. Smith's solid-cast runner design provides the additional advantages of closer spacing of buckets resulting in increased speed and consequently, a decrease in the size of the turbine unit, as well as the generator. Write for your copy of our Bulletin — "Impulse Turbines by SMITH!"

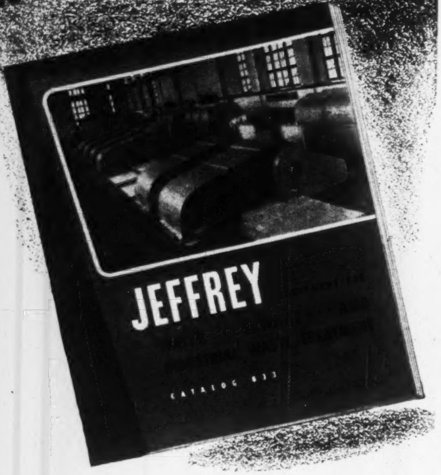
Impulse runner of *solid-cast* design, an exclusive SMITH advantage.

S. MORGAN SMITH COMPANY

YORK, PENNSYLVANIA

POWER by SMITH

IF YOU ARE FACED WITH A WASTE PROBLEM



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Contains New Engineering Data and a hundred photos and drawings covering:

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It's complete . . . packed with useful information . . . profusely illustrated. Catalog No. 833 goes into detail, covering modern methods for modern treatment. All the information you need under one cover. Send for your copy.

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Designed by Road Contractor
26' Aluminum Body—8' Wide
2 Rooms—2 Built-in Desks
1 Drafting Table—Built-in
Letter Files—Cabinets—
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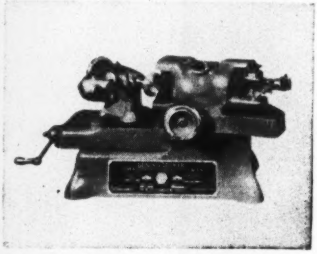
HENRY A. BUFF, *President.*

other dry-batch materials. The combination can also be used to unload and stockpile. The unloader has been fitted with complete metal covers for the undercar section and up-run. Conveyor housing encloses the entire length of the belt. Concentrating spout at the head end controls escape of fines.—BARBER-GREENE CO., AURORA, ILL.



Wet-grinding valve refacer

Deluxe super-service refacer will traverse grind all valves from 0 to 90 deg. It handles valve stems from 9/32 to 11/16 in., and has a valve head capacity up to 4 in. in dia. Wheel head is at a 20-deg offset permitting traverse grinding of any angle valve face including flat type. Work head is hypoid-gear driven. Hand wheel on work head gives quick-clamp action on stem in collet. Attachments for grinding stems, tappets, and rocker arms are standard equipment. Wheel dressing attachment is also standard equipment.—THE BLACK & DECKER MFG. CO., TOWSON 4, MD.

New Product Briefs

Aluminum paint is capable of withstanding temperatures to 1,700-deg F. Heat-Rem H-170 utilizes a silicone base. Produced by: Speco, Inc., Cleveland 9, Ohio.

Junior dehumidifier is powered by a ⅓-hp freon condensing unit. Maximum removal capacity is 50 lb of water in 24 hr. Made by: Walter Haertel Co., Minneapolis, Minn.

Bung bushing barrel pump (pull type) handles light liquids. Fits 1½ and 2-in. openings on 15 to 55-gal drums. Made by: General Scientific Equipment Co., Philadelphia 32, Pa.

Mercury safety switch is recommended for use in hazardous, explosive locations. Actuating linkage is mechanical in nature, obviating the possibility of any spark. Made by: Panalarm Products, Inc., Chicago 26, Ill.

4,500,000-yd. DAM
for Algeria

All earthmoving on this extensive power, flood-control and irrigation project is being handled under the direction of the Electricite & Gaz d'Algerie.

6 rubber-tired Tournarockers, 3 Tournadozers speed progress *of Barrage de l'Iril Emda*

For generations, the Chabet-el-Akra Valley in northern Algeria has alternated between flood and drought. Within a few years, however, the floods will be greatly reduced and the period of drought ended. Perennial water control and irrigation will be provided by the l'Iril Emda Dam, now being built across the Chabet-el-Akra River at Kerrata.

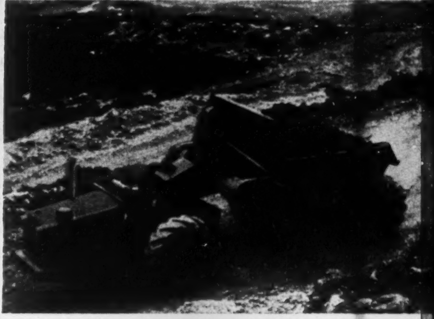
This vast public works project requires the excavation of 523,000 cu. yds. (400,000 m³) of gravel, muck, rock, shale and slate to prepare a stable footing for construction of the dam, and the filling in of 3,924,000 cu. yds. (3,000,000 m³) of rock to form the dam itself. When completed, the giant rock-fill structure will be 1700 ft. (520 m.) long, 245 ft. (75 m.) high, and 820 ft. (250 m.) wide at its base.

LeTourneau equipment assigned to project

Groupement des Entreprises du Barrage de l'Iril Emda of Kerrata has assigned a fleet of 6 LeTourneau big-capacity Tournarockers for hauling on both excavating and filling operations. Carrying up to 16 tons of rock each trip, these giant rear-dump trucks haul up steep 11 to 14% grades from shovel to spoil bank, dumping their loads at the touch of an electric switch.

G.E.B.I.E. has also modernized pit and dump clean-up and haul road maintenance with 3 LeTourneau rubber-tired Tournadozers (illustrated lower right). The mobile Bulldozers, rolling on giant tires, travel from shovel to shovel and dumping area to dumping area at speeds up to 19 m.p.h. Despite typical desert temperatures, and frequent sand storms which often completely stop operations, both Tournarockers and Tournadozers are setting a fast earthmoving pace, according to project supervisors.

The rubber-tired mobility and unusually high-working speeds of these modern earthmovers are very important factors in increasing production and lowering costs on the Kerrata Project. Your nearest LeTourneau Distributor can explain how these machines will simplify operations and speed completion of *your* dozing, excavating and hauling projects. Call or write him soon.



Both hauling and dozing have been modernized with LeTourneau rubber-tired 35 m.p.h. Tournarockers (above), and mobile 19 m.p.h. Tournadozers (below).

To reach this isolated mountain region southeast of Bougie, the 9 LeTourneau machines drove 236 mi. (380 km.) under their own power from the Port of Algiers.

R. G. LeTOURNEAU, Inc.

PEORIA, ILLINOIS, U. S. A. (Cable Address: "BOBLETORNO")

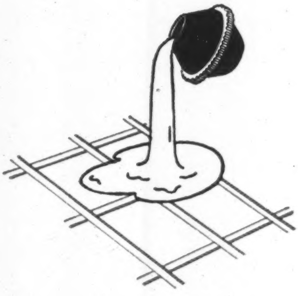
For the toughest drainage jobs... concrete pipe reinforced with American Welded Wire Fabric

ON the nation's highways, railroads and airports, the tremendous volume of surface run off is handled most efficiently by reinforced concrete pipe. In water supply and sewer systems, too, reinforced concrete pipe handles the volume, withstands the pressure, maintains effective leakage limits.

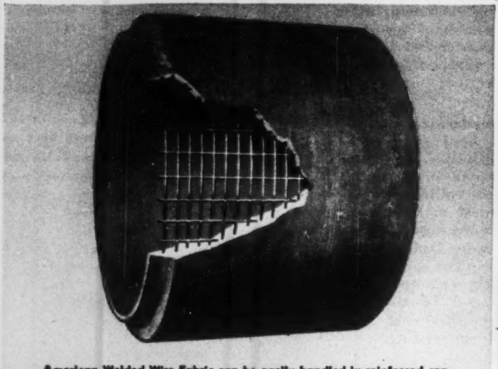
Prominent fabricators have established uniform specifications for the manufacture of reinforced concrete pipe. Those specifications meet the standards set by the A.S.T.M. And an impressive proportion of the industry's output is reinforced with American Welded Wire Fabric, the *reinforcement* for concrete that meets all A.S.T.M. requirements.

American Welded Wire Fabric distributes the strength of high yield point steel throughout all parts of the pipe and forms a perfect bond with concrete. The welded fabric can be quickly and easily shaped into cages to fit molds that produce pipe sections of various diameters and lengths. The reinforcement stays in place during pouring and tamping.

So, when you are planning projects that require reinforced concrete pipe, be sure the pipe you get is reinforced with U·S·S American Welded Wire Fabric.



AMERICAN STEEL & WIRE COMPANY, GEN. OFFICES: CLEVELAND
COLUMBIA STEEL COMPANY, SAN FRANCISCO
PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



American Welded Wire Fabric can be easily handled in reinforced concrete pipe fabrication. The long rolls can be quickly shaped and cut to form single or double cages of the desired length and diameter. There are a number of manufacturers who produce reinforced concrete pipe to rigid standards and specifications. Get in touch with one of them when you need concrete pipe. And make sure you select one of the many fabricators who use American Welded Wire Fabric.

Every type of concrete construction needs

USS **AMERICAN WELDED WIRE FABRIC**

reinforcement

UNITED STATES STEEL

Manufacturers' Publications

Reinforcing bars—Simplified Practice Recommendation R 26-50 covers standard sizes of steel reinforcing bars. It lists bar number and weight for each of 10 sizes. Numbering system is based on the number of eighths of an inch in the nominal diameter of the bars. Table of typical equivalents is revised to give fractional size formerly used, current bar designations, unit weight, and nominal dimensions of round sections. Cost is 5¢ per copy. —SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON 25, D. C.

Lumber purchasing guide – 1951 Where-to-Buy guide is now off the presses. Detailed information is given on sawmills, re-manufacturing plants, timber fabricators, a wood pipe and tank manufacturer, and woodtreating plants in the Douglas fir region of western Washington, Oregon, and northern California. —WEST COAST LUMBERMEN'S ASSN., 1410 S.W. MORRISON ST., PORTLAND 5, ORE.

Home-wiring handbook—Third edition of 135-p guide covers planned wiring of homes in the popular-priced group. The handbook emphases the use of safety and functional design. Described in detail in Booklet B-3510-B are four degrees of electrical living, including minimum outlet requirements, selection of number and type of circuits, circuit protection, and communication systems. — WESTINGHOUSE ELECTRIC CORP., P. O. Box 2099, PITTSBURGH 30, PA.

Electric pallet truck—Comprehensive book (18pp) shows details of the improved Model W electric pallet truck. Features described in detail include: 4,000-lb. capacity, high maneuverability, new contactor panel, positive-acting brake with dead-man control, improved differential action, and all-rubber dual trailer wheels.—TOWMOTOR CORP., 1226 E. 152ND ST., CLEVELAND 10, OHIO.

Air-conditioning equipment – Double-flap cover of booklet opens outward to reveal each of the Kooler-aire equipment's basic components. The booklet also provides installation diagrams and instructions, general specifications and capacities, and instructions for adaptations to permit the use of the equipment as a heating unit. Kooler-aires are available in capacities ranging

(*Continued on page 123*)

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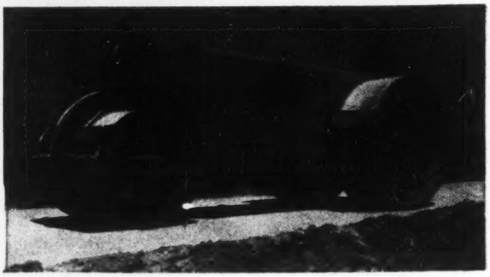

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MANUFACTURERS OF HUBER MAINTAINERS, GRADERS AND COMPLETE LINE OF ROLLERS from 3 to 40 tons.—United States Air Conditioning Corp., 3300 Como Ave., S.E., Minneapolis 14, Minn.

Packaged generators—Inside story of packaged generators (3.75 to 187 kva) is given in this 16-p catalog. Included in the bulletin is helpful electrical information, charts, graphs, and illustrations to aid in the selection and application of generators. Also listed are power factor tables; charts for figuring wire and conduit sizes; current and power requirements of motors; voltage dip for a given horsepower motor; and information on how to figure motor requirements.—Electric Machinery Mfg. Co., 1331 N.E. Tyler, Minneapolis 13, Minn.

Pressure-reducing valve—Technical information on a cushioned water-pressure reducing valve is contained in 6-p Bulletin W-3. The bulletin features the general arrangement of the valve and a detailed list of parts. Installation, operation, adjustment, servicing, and specifications are fully described. A table lists general dimensions and weights.—Golden-Anderson Valve Specialty Co., 2094 Keenan Bldg., Pittsburgh 22, Pa.

Chains and sprockets—Catalog A-418 (216 pp) covers a line of chains and sprockets for new or replacement service on elevating and conveying equipment, and for drives. Illustrated and described in detail are 22 types of standard malleable, steel and alloy chains, and many types designed for special requirements. Special emphasis is given to drive chains. Information listed simplifies selection.—The Jeffrey Mfg. Co., 923 N 4th St., Columbus 16, Ohio.

Bucket repair—Repairing and rebuilding of worn buckets is described in an illustrated folder. The folder discusses the use of Manganal 11 to 13½% manganese-steel products for every type of bucket repair. Complete details are presented on the chemical characteristics and physical properties of the Manganal alloys.—Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.

Clamshell buckets—Features of all-welded clamshell buckets are described in this 8-pager. A full page in the catalog is devoted to a complete table of condensed specifications listing capacity, weight, dimensions, and sheave and cable data for each size (⅜ to 2½ yd) and type of bucket. Action photographs show the buckets in use. C. S. Johnson Co., Subs. of Koehring Co., Champaign, Ill.

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Injuries and your purse

Mobilization is gathering speed—and with the speed up will come more man-hours of work for the construction industry. But such a speedup—say the government's statisticians—won't bring with it a stepped-up accident rate. Instead, job injury-frequency rates will probably go down in number as the nation plows into a war-time economy.

During World War II injury rates dropped. Curtailment or elimination of the more hazardous types of construction during the war period explain a part of this phenomenon. The same pattern can be expected again.

In 1938, when there were no war preparations, construction workers had an average injury rate of 58.6 per million man-hours worked. By 1943 the rate was only 26.1—the lowest point yet—and remained near that level during the next two years. After that it went to 40, in 1948 dropped to 37 per million man-hours, and it is expected that the 1949 rate will probably be still lower when available.

• **Accidents drop in wartime**—The Bureau of Labor Statistics gives these figures, and cites three major causes for the wartime reduction in accidents on the job (See WORK INJURIES IN CONSTRUCTION, 1948-1949, Bul. 1004):

Reason one, a change in the composition of the construction industry itself.

Reason two, the great amount of building in light Army camp construction.

Reason three, a definite improvement in safety through the conservation of manpower and government regulations under federal contracts.

There is a worker shortage again today. Unemployment is lower than it was in 1941. Management pressure to reduce lost man-hours through safety measures will be mounting.

• **Safety means savings**—Besides manpower savings, BLS points out that better safety records in construction means reduced cost for contractors. Around 183,000 construction workers suffered injuries that kept them off the job in 1949, including 2,100 killed, 300 totally and permanently disabled and 7,300 with some degree of permanent impairment.

Actual time lost in 1949 was 2.6 million man-days. On future production and wages that will be lost due to the death of construction workers, or their permanent disability, BLS puts a value of $250-million.

This cannot be shrugged off by contractors. It hits them in the form of insurance premiums, direct compensation payments, and the costs of hospitalization and other medical benefits.

Indirect costs include property damage, penalties for delayed contracts and reorganization of operations after the accident.

• **The hidden costs**—Exhaustive studies by the Associated General Contractors of America have begun to reveal just what these accidents cost. Simply put, for each dollar paid out by the insurance company, a contractor pays four dollars of indirect cost on the same accident.

Put even more specifically, AGC says each disabling accident costs the average employer around $5,250. This amounts to about $1 billion for the entire industry.

To understand what these figures mean, let's take a typical contractor.

Given an average payroll, and a volume of $1,000,000 annually, his compensation insurance would cost $14,000. Given an average number of accidents—say around eight in a year—indirect or hidden costs would amount to $28,000 or a total accident cost of $42,000. If his payroll is $400,000, this is more than 10 % of his total payroll. In addition, most states have penalty clauses under which employers can be assessed up to one hundred percent of compensation if safety codes have been violated. In these cases there is always the added and immeasurable cost of lost good will and morale.

Now if our typical contractor had put into effect a safety program cutting the number of accidents occurring in a year by one half—savings of $21,000 in direct and indirect costs would be possible.

• **To avoid regulations**—Self policing on safety problems is also more in style these days for more than monetary reasons. Typical contractors dislike federal control, and fear the imposition of state or federal regulations and inspections. For this reason contractor organizations such as the AGC urge management and labor to clean themselves up by their own policing on safety measures.

"It would be very disappointing in the long run to have any state or federal inspection in regard to safety, as the situation might very easily develop where these inspectors would have sufficient power to shut down work, and interfere with job methods," Walter L. Couse, AGC president, has warned the industry.

Practical example of self-regulation cited by Mr. Couse, is the work of the W. L. Johnson Construction Co., Columbus, O.

Each week this company appoints a new inspection committee. This group is composed of a supervisor, craftsman, and a common laborer, each paid five dollars a day for their services.

• **Management inspection**—The committee polices the company's projects, anticipates hazards, and recommends steps to prevent possible accidents. Each committee makes a report which is the basis of a memorandum from the office of the company's job superintendent to all foremen. The memorandum calls attention to hazards noted during the week. Each foreman is expected to take action to meet the hazards noted, and alert his men to the dangers noted. Foremen are expected to take action to meet the hazards pointed out and alert their men to possible dangers.

Each week 15-minute safety discussions are held by carpenters and a daily clean-up held by their helpers to keep workers safety minded.

According to Couse, the plan places control over accidents "*at the site* and *on the job*, and create real accident prevention through the men themselves." Because of this, the entire safety program has become "a cooperative effort that is the pride of the entire firm."

• **A careful hirer**—Care in hiring new men has also been urged as a safety precaution. A check of each new employee's safety record can save firms from hiring "claim-minded" workers.

Most hazardous construction occupations are: pile drivers with a rate of 97.3, welders at 88.4, air-tool operators at 62.7, wreckers at 56.8, maintenance workers at 55.7, composition roofers at 54.1, and structural iron workers at 53.9.

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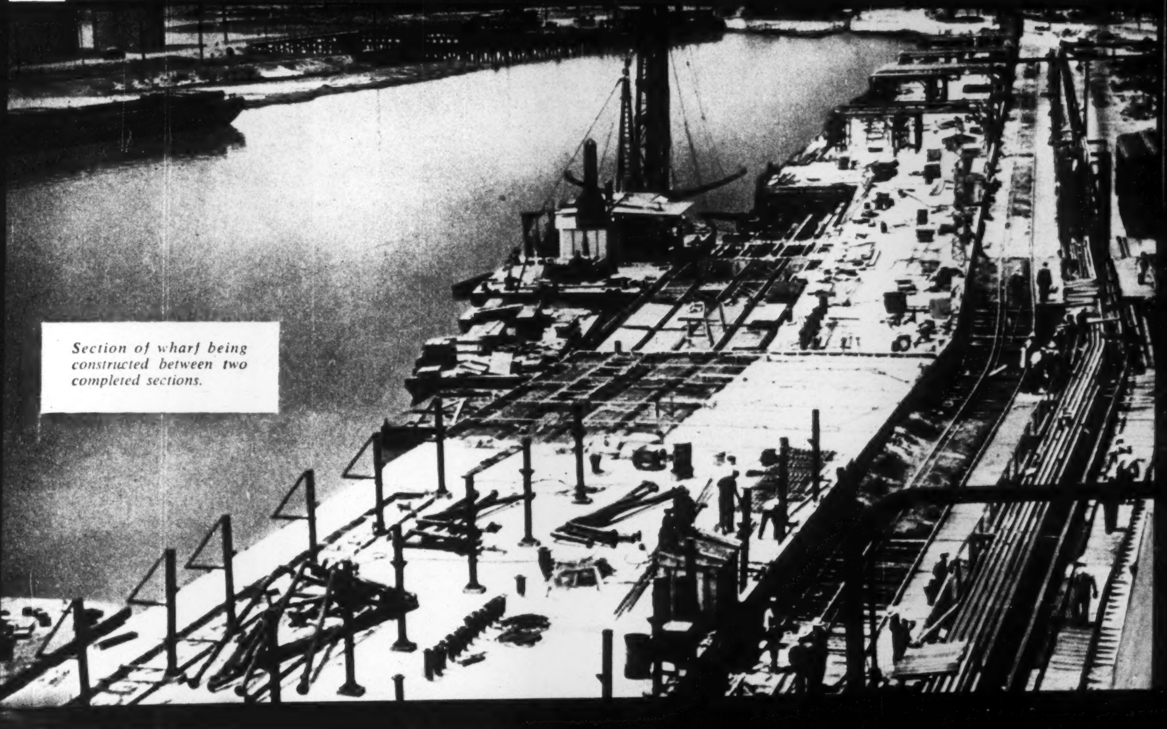

Section of wharf being constructed between two completed sections.

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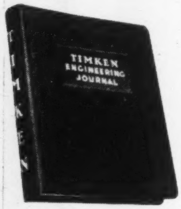

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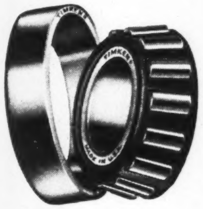

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